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ORIGINAL ARTICLES.

A NEW DIAGNOSTIC SIGN FOR THE EARLY RECOGNITION OF CARCINOMA OF THE STOMACH.

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RECOGNIZING, through some experience in the management of gastric disorders by modern methods of research, the extreme value of data tending to the early diagnosis of malignant disease of the stomach and its separation from affections less grave that often intimately simulate it, it was with great gratification that I read the result of Boas' further investigations as to the significance of a lactic-acid reaction in gastric disease, first mentioned in the second edition of his work on the stomach. In the paper[1] in which the result of his research appears data were given so strongly supporting his earlier assertion, that a marked lactic-acid reaction indicates carcinoma of the stomach, that it was evident the matter merited the serious attention of the clinician.

The utter inability usually to diagnosticate positively a malignant gastric neoplasm in its early stage, when so situated that the presence of the tumor is undetermined until a period too late for surgical interference, naturally renders one who feels there is no higher court keenly desirous of more certain differentiation-methods than we possess. This is especially felt by the physician, also, on account of the anxiety he must experience in his frequent inability to assert positively that an ailment is not carcinomatous, in the presence of certain forms of gastric disease of insidious and seemingly grave nature, occurring in the middle period of life, of neural or inflammatory origin, the symptomatology and course of which so often intimately suggest a malignant growth.

The early idea that the absence of HCl from the stomach-contents was diagnostic of carcinoma, which arose through the investigation of von den Velden, unfortunately could not be subsequently confirmed, and it is now generally recognized that in a large number of diverse gastric affections, primary or symptomatic, free HCl may be either temporarily or permanently absent. The memory of the once grave import attached to this sign when free HCl was absent for at least a considerable time, in the face of pronounced symptoms, and at an age when the occurrence of carcinoma was possible, and the earlier errors in judgment not infrequently so originated when faith in this indication was strong, should lead one to examine very critically the evidence concerning this new dictum of Boas, which, if true, is so valuable.

With these thoughts in mind I have concerned myself with an examination of the matter since becoming aware of Boas' earlier results. My desire has been to investigate impartially the subject before saying a word concerning it, and then presenting finally personal evidence *pro* or *con* that could be regarded as conclusive. Unfortunately for my purpose, in the past sixteen months a dearth of that ample and suitable material from which data for conclusive opinion could be finally given, and the too brief time that has elapsed for such positive judgment, do not allow of report now. I regard it essential to direct attention to the subject thus prematurely, however, in order to bring to the notice of the readers of THE MEDICAL NEWS some results of Boas' work, for the purpose especially of correcting a misapprehension that may have been created by some remarks in a paper recently published in these columns, on "The Treatment of Lactic-Acid Excess in the Stomach."[1] In this paper the author, referring very briefly to the result of Boas' valuable investigations, and presumably familiar with the technique employed by the latter, remarks that his own experience entirely negatives Boas' conclusions. He then specifically states that, unlike Boas, he has encountered lactic acid in the stomach, not only during the first part of normal digestion, but also under abnormal conditions, whether these are accompanied by persistent diminution in the secretion of HCl, or in its absence, and in such affections as sluggish motility and gastrectasia, with or without malignant disease, especially when so situated as to cause stenosis.

Although it is evident to me, it cannot be to those not familiar with Boas' work, that the author of this statement has not employed Boas' technique, and is unaware of the very grave errors and utterly useless results that must arise from such inattention, naturally leading to misapprehension and

[1] Entitled, "The Occurrence and Diagnostic Value of Lactic Acid in the Stomach," Münchener medicinische Wochenschrift, October 24, 1893.

[1] By Dr. A. A. Jones.

tending to bring the praiseworthy investigations of Boas, from which so much may be expected, into early and undeserved discredit.

The past researches of Ewald and Boas, as is well known, indicated that fermentation lactic acid[1] is regularly formed during the early stage of normal gastric digestion, and that its inhibition and final disappearance occur only in the presence of some amount of unsatisfied free HCl,[2] and this is still accepted by the many who similarly cling to the ancient idea that lactic acid is a very common accompaniment of the fermentative processes of chronic gastritis and other affections of the stomach, in which there is great diminution in or absence of free HCl. This view was dominant until the recent researches of Martius and Lüttke on HCl-determinations in the stomach, during which these investigators first showed that lactic-acid formation does not occur normally in the stomach, as was supposed, and that, moreover, it is absent under conditions in which its presence had been supposed to be quite constant. Previous erroneous results originating the former view have apparently arisen through either trial-meals having been given that contained preformed lactic acid or its compounds, or through sources of error not then apparent in the application of the tests for lactic acid. The results of Martius and Lüttke were so constant as to the evidence of absence of lactic acid both in normal gastric digestion and in chronic gastritis that Boas, in view of these, instituted a reinvestigation of the whole subject. As concerns the former of these points, Boas soon ascertained the highly significant fact, perhaps explanatory of former contrary results and of those of a contrary nature obtained by Dr. Jones,[3] referred to, that *all products of the bakery contain, preformed, an appreciable amount of lactic acid.*[4]

Adopting a form of trial-meal[5] from which error could not arise—a flour-soup, the ethereal extract of which was found not to contain even the minutest traces of lactic acid or lactates—and taking the precaution, first, to cleanse by lavage the stomach in any case in which retarded propulsion would permit remnants of a former meal to be present and falsify the issue, his results have been invariable that not only is lactic acid not present at any stage of normal digestion, whether free HCl be absent or not, but that *it is constantly absent also in all affections of the stomach save carcinoma.* Boas, moreover, found that in the latter lactic acid is usually present during the digestive process in such amounts and at such an early period that by its recognition the ailment may be readily diagnosticated, when other symptoms, such as tumor and increasing cachexia, are yet absent and strong hope exists for a cure by operative means.

Researches in Boas' clinic were made on all types of chronic diseases of the stomach, with the exception of ulcer, in the latter of which Boas naturally regards it as inexpedient either for diagnostic or therapeutic purposes to employ the tube. These cases include a large number of atony, chronic gastritis, pyloric stenosis with consecutive dilatation, and, finally, carcinoma. *In all of these, with the notable exception of the last, even although in the non-malignant cases with pyloric stenosis the trial-meal was allowed to remain over night in the stomach, and marked fermentative processes had occurred, with the presence of sarcinæ, yeast-fungi, hydrogen sulphid, acetone, and the like, lactic acid was always absent.*

In marked contrast to this were the results in the cases of carcinoma. In twenty out of the twenty-one cases studied, whether encountered before the presence of tumor or subsequently, lactic acid was constantly present in such an amount as to give a marked reaction to such a coarse test as that of Uffelmann. In the greater number of these cases there was delayed propulsion, the stomach containing in the morning the remnants of food ingested the evening before. This was especially noted even in the early stage in those cases in which the lesser curvature was afterward shown to be the seat of the growth. In all of the twenty-one cases free HCl was constantly absent. A strikingly interesting feature that forcibly illustrates the practical diagnostic value of Boas' observations, if further fully confirmed, is the fact that four of these cases came under observation at a very early stage, before any indication of tumor was detectable, and that a diagnosis made by the lactic-acid finding was fully verified by the subsequent development of the characteristic symptoms, including the presence of tumor, and in one of the three, still later, by a necropsy.

This last case is probably that referred to by Cohnheim, of Boas' clinic, in an interesting paper[1] on the early diagnosis of gastric carcinoma. This case is of such striking interest that it merits brief mention here as illustrative of the value of this new diagnostic point.

The patient, a male, forty years old, presented himself at the Polyclinic in Berlin during April,

[1] As distinct from sarcolactic acid existing in flesh.

[2] From 0.01 to 0.07 per cent.

[3] That is, accepting that all sources of error in the application of the tests for lactic acid were eliminated, as is, of course, to be supposed.

[4] Boas' words are: "Allein es hat sich gezeigt—und das ist ein cardinaler Punkt—dass sämmtliche im Handel vorkommenden Gebäckarten mehr oder minder grosse Mengen Milchsäure präformirt enthalten. Alle meine Versuche, mir ein absolut milchsäurefreies Gebäck zu verschaffen, blieben resultatlos."

[5] This consisted specifically of a thin gruel made of a tablespoonful of oatmeal flour to the liter of water, and flavored with salt.

[1] Deutsche medicinische Wochenschrift, May 17, 1894.

1892, with symptoms that first led to the diagnosis of gastric ulcer, on which account examination of the secretory function of the stomach was made. He at first improved on the treatment instituted, and the painful areas, anteriorly and dorsad, suggestive of ulcer, disappeared. Shortly afterward he again returned for treatment, with renewed symptoms, including repeated vomiting. A gastric examination was now made and disclosed absence of free HCl; very pronounced presence of lactic acid, and marked stagnation of the ingesta, but without as yet decided dilatation of the stomach. These findings were obtained with all subsequent—a good number of—tests made. Although no tumor was apparent by the end of May, 1892, Boas diagnosticated gastric carcinoma, from the fact of the decided amount of lactic acid always present, the total absence of free HCl, repeated vomiting, decided loss of flesh, and the development of pronounced symptoms of gastric disorder without demonstrable cause.

Under lavage decided improvement occurred, and after two-and-a-half months' treatment the patient was discharged. Two months subsequently (August, 1892) symptoms had recurred, loss in weight continued, and some cachexia had now appeared. The liver was apparently enlarged, yet no tumor was appreciable to palpation. He was again lost sight of, but was finally seen in December, 1892. He then had lost eighty pounds in flesh. The vomit was at times of a "coffee-ground" appearance; there was edema; some swelling of the inguinal glands; fissured, uncoated tongue; a weak, easily compressible pulse. Between the right sternal and parasternal lines, halfway between the xiphoid process and the umbilicus, could now, for the first time, be felt a tumor that seemed to spring from the liver. The stomach was not enlarged to inspection, and no splashing sound was to be obtained. By percussion the greater curvature was found to occupy the umbilical region. The patient shortly afterward died. A necropsy revealed a hard tumor, the size of an apple (an adeno-carcinoma, rich in connective tissue, ulcerated on its mucous surface), occupying the pyloric region and sharply defined from the remainder of the stomach. The pylorus was patent to one finger. The tumor had not been demonstrable to palpation until late in the course of the ailment, because of its being entirely covered by the liver. Resistance in the region of the gall-bladder, which had been felt and which had been regarded as a metastasis to the liver, had been produced by this tumor so overlapped. This error, considering the unusual position of the growth, was venial.

These results, in the hands of so competent an observer as Boas, very naturally interested me greatly, as my own work lies so largely in a similar field. Although I am as yet unprepared to offer the data I have obtained from an investigation of the subject to the present, because, as remarked, of paucity of material and prematureness of opinion, I may rightly state here that thus far my observations are all in support of Boas, and I have come to feel that much may be expected from this new diagnostic sign.

Apart from its obvious practical positive value, my present experience indicates that it may be regarded of the greatest utility from a negative standpoint, although it is, perhaps, early to speak very positively as to this now. I can at least say that it has stood me in good stead on more than one occasion already. It will be of interest and profit to relate that more than a year ago, when I began routine examinations for lactic acid after Boas' method, and following his technique, I failed to obtain reactions for it in gastric ailments obviously, without this test, not carcinomatous, and I likewise obtained persistently negative results in several cases which then presented, as regards the usual clinical picture, symptoms among not the least of which were loss of weight, more or less cachexia, and a favorable age, strongly suggestive of incipient malignant disease of the stomach. But the continued absence of lactic acid enabled me to take a more hopeful view, which the sequel has in each case supported.

One of these cases is worthy of notice here. It is that of the mother of one of my former clinical assistants, brought to me in November, 1893, for an opinion because of the gastric ailment being regarded by an earlier attendant as of the nature of possible malignant disease.

The patient, forty-seven years old, who for several years past had had dyspeptic symptoms, developed, somewhat less than a year previously to my seeing her, more or less continuous gastric pain, increased by food often of the plainest sort; there were constipation and vomiting; anorexia was complete, and she had lost much flesh within a few months. This last was apparently largely due to the fact that she had been kept upon a strictly milk diet for a long time. She had frequent attacks, lasting for from some hours to one or two days, in which there was great prostration, with dyspnea, an almost extinct pulse at the wrist, and a very feebly acting heart. When not suffering from these attacks the heart was in fair condition, with a pulse of moderate tension. The patient was highly anemic, somewhat emaciated, with what then seemed a trace of cachexia. The teeth were very imperfect, the breath foul from the latter, and the tongue usually slightly furred. Constant salivation was present. The epigastric area was tender to pressure, slight or deep, and, apparently, more so at the site of the greater curvature and near the pylorus. No evidence of tumor was obtainable. The stomach showed slight dilatation by auscultatory percussion, reaching, when only slightly distended with air and otherwise empty, to within an inch of the umbilicus. The area of liver-dulness was normal; no displacement of the right kidney existed. The urine was free from albumin; urea was normal in amount.

Several gastric examinations made within a few days of each other all showed: Absence of free HCl; no Günzburg's response until from (variously

on different occasions) 0.5 to 2 c.c. of $HCl\frac{N}{10}$ were added to 10 c.c. of the filtrate. Total acidity, usually from 20 to 30. Digestion-test was but slightly positive in from eight to ten hours, even with the addition of HCl up to 0.2 per cent. free acid. The lab-test was delayed (upward of five hours) in the incubator. The labzymogen-test was positive only at the end of one hour. Gastric propulsion was sluggish; one-and-a-half hours after an Ewald trial-breakfast (a roll and 300 c.c. water) upward of 160 c.c. could be removed. On alternate occasions there were given the baker's-roll breakfast and that of from two-thirds of a pint to a pint of thin gruel. With the former a slight lactic-acid reaction was usually obtained, while with the latter no traces of lactic acid even existed.

Jaworski's test showed no pronounced atrophy of the secretory structure.

Diagnosis: Aggravated chronic gastritis, perhaps originated by the condition of the mouth.

The patient was at once sent to a dentist, and, as her strength permitted, the bad teeth were removed and the mouth put into order.

I instituted a very carefully regulated diet; at first very easily digested, and often of predigested food. Systematic daily lavage was begun, Carlsbad salts were given for constipation, and codein, cannabis indica, and belladonna, for periods of a few days, were used for gastric pain; and the belladonna also to control salivation. At first, for a time, and later for shorter intervals, dilute HCl was administered before meals when predigested food was not given. At the outset it was employed in small, and subsequently in large doses, when nitrogenous solid food was eaten, as a stimulator of secretion and motility. An active preparation of papain was used after meals. Later, to assist in remedying the anemia, the mixture of iron carbonate was given in teaspoonful-doses after meals, and strychnin and nitro-gylcerin were employed for the attacks of prostration. Improvement was soon apparent in the subjective symptoms. The appetite returned somewhat. Pain was no longer continuous, but occasionally it was as severe as before; on pressure it had also lessened, and vomiting was less frequent. The tongue soon cleared, and fetor of the breath disappeared, as did finally all tendency to salivation; but at the expiration of four months there was no alteration in the condition of the secretory function of the stomach, although propulsion had slightly improved. Daily lavage could not be continued steadily, because of the exhaustion its practice occasioned, and cascara was substituted for the Carlsbad salts, to remedy the constipation, on account of the salts apparently aggravating the gastric pain. Secretion of free HCl being still lacking after a number of months of the foregoing treatment, intragastric galvanism and faradism were begun and continued in combination, and after several weeks faradism alone for some two months, with still no decided change in secretory function. She was then removed to the seashore. After a few weeks, during which I did not see her, I was informed that although she looked better she still had gastric pain, occasionally vomited, and that on several occasions during morning lavage, while fasting, a little blood and a few particles resembling small pieces of tissue were seen in the water. Unfortunately, these latter had not been saved for examination. When seen later—in August, 1894—her weight was still eight pounds less than in the winter, probably partly due to change in weight of wearing-apparel. Nothing had been noted in the wash-water for some time. Appetite then was moderate. Epigastric pain and tenderness persisted, but were less in degree than formerly. No tumor was evident and no cachexia. Lactic acid and free HCl were still absent.

This case in several of its features strongly suggested the possibility of one form of latent gastric carcinoma, and had the result of the non-detection of lactic acid been contrary, with the coincident steady absence of free HCl under treatment likely to promote its return, I should have regarded it as within the range of probabilities and given a gloomy prognosis. Since the end of summer steady improvement has occurred under the use of full doses of HCl, strychnin, iron, and lavage twice or thrice weekly, and when recently seen the woman presented no indications suggestive of grave disease, although free HCl has not returned.[1] She had regained all the weight lost; had a good color and a good appetite and ate and digested well through the aid of HCl or papain.

The method employed by Boas for the detection of lactic acid in the earlier part of his experiments was the color-test of Uffelmann, so generally used for a like purpose everywhere, because of its simplicity of application and, when certain very important precautions are observed, its accuracy.

A large series of experiments in Boas' clinic convinced him that no color approaching that of the lactic-acid reaction save a *decided* citron-greenish yellow (Cohnheim), or a canary-yellow,[2] could be depended upon; and the fact must be borne in mind that a considerable number of substances react to the ferric-chlorid test in a manner approaching the response of lactic acid, although not so intensely or with the same hue. A differentiation may, therefore, be made by one practically familiar with this color-test. Such substances as acid phosphates, sugar, alcohol, tartaric acid, en-

[1] An examination after the flour-soup meal at the date of this writing gave the following: One-and-a-half hours after the trial-breakfast, the stomach having been washed the evening before, 100 c.c. were removed by aspiration; the gruel well solved, t. a. = 24; no response to freshly-made Günzburg's solution; no traces of lactic acid. Lab-test positive in one hour; lab-zymogen within one minute. Because of the quantity of filtrate used for the lactic-acid experiment, sufficient was not left for the digestion-test or for examination as to bound HCl.

[2] Boas speaks of the special hue of these decisive colors as either *saturated canary-yellow* or a *zeissig-yellow*. Any other coloration cannot be regarded as conclusive.

countered constantly or occasionally in the stomach-contents, may all mislead the unwary. When this test is employed and a positive reaction is obtained, it is always essential to exhaust a portion of the gastric filtrate with ether, and further test an aqueous solution of the residue. By this means all sources of error, save alcohol, are removed.[1] Great care must be exercised in the application of such an apparently simple test even as that of Uffelmann or its modifications, and the judgment of none without some practical training in chemic manipulation and acquaintance with the shades of color yielded by varying amounts of lactic acid and its simulators is to be depended upon. Especially is this the case when so much hinges upon an opinion in a matter so weighty as the determination of the presence of lactic acid now becomes.

As regards negative results, error may also arise. Ewald speaks of such an observer as Cahn, of Strassburg, who could not at first confirm Ewald's findings as to the presence of lactic acid in the digestion of meat.

The sources of error with Uffelmann's reagent and its lack of delicacy, the inability to depend upon a response unless of the characteristic color mentioned—to produce which its presence in some amount is required—finally led Boas to seek another method that would be of value clinically as well as more exact chemically, and at the same time of far greater delicacy. He finally perfected such a method, which is simple of application, especially when qualitative results only are desired. This method is based upon the fact that when substances containing lactic acid are carefully heated with oxidizers, such as manganese dioxid and sulphuric acid, the lactic acid is decomposed into formic acid and acetic aldehyd. The presence of the last is readily determined by a number of tests. Boas regards the iodoform-test as well suited for both qualitative and quantitative work. By it, the aldehyd conducted into an alkaline solution of iodin forms iodoform. A quantitative examination is possible by this method from the fact that under proper precautions a definite amount of aldehyd decomposes a given quantity of iodin-solution. Ketone and alcohol, which both react similarly, are readily eliminated by first concentrating the filtrate to be tested to a syrupy consistence. As carbohydrates, similarly treated with oxidizing agents, also yield aldehyd, a watery solution of an ethereal extract[2] of the condensed gastric filtrate, of a non-lactic-acid-yielding trial-meal, must alone be used in the experiment. Special treatment is also required of the filtrate before concentration, should it show the presence of free acids to congo.[1] As this test properly applied is without sources of error and its manipulation is most easy to one accustomed to chemic work, and it is, moreover, one of great delicacy, it should undoubtedly supplant the old uncertain method of Uffelmann or its modifications.

The scope of this paper—intended merely as a preliminary note and already too lengthy—does not admit of discussion of the most interesting problem as to the cause of the gastric formation of lactic acid only in carcinoma: Whether it be through the production of a lactic-acid enzyme, by the specific agency of the carcinoma, or through the latter alone favoring the abundant development of lactic-acid-generating micro-organisms, probably derived from the mouth, of which more than one variety exists. This question, so interesting and important, will receive due attention in a subsequent paper.

[1] It must be remembered that all preparations of ether, save that especially obtained without, contain considerable alcohol.

[2] Prepared with an absolutely alcohol-free ether.

THE INDICATIONS FOR AND THE NATURE OF TREATMENT IN SEVERE ABDOMINAL INJURIES AND INTRA-ABDOMINAL HEMORRHAGE, UNACCOMPANIED BY EXTERNAL EVIDENCE OF VIOLENCE.[3]

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EVERY surgeon has undoubtedly at some time in his experience, either in private or hospital practice, met with cases of the class covered by the title of this paper. These are cases in which the history and general condition of the patient give the impression that there is a serious lesion within the abdomen, and yet, upon examination, we find total absence or only slight evidences of injury. The tendency, I fear, with many is to treat these patients tentatively, only to be awakened at the autopsy to the fact that a rupture or a tear existed in the abdominal cavity, which could have been relieved by early radical operation.

The mortality in these cases is appalling. References to the literature of the subject will amply bear out this statement, which is readily accounted for by the nature of the injuries. When the lesion is of the liver or spleen, if the patient does not die of shock or hemorrhage, a violent peritonitis supervenes, to which he shortly succumbs. If the liver,

[1] This excellent method I mention here in outline only. The process itself is treated in detail in a paper by Boas in the Deutsche medicinische Wochenschrift, September 28, 1893.

[3] Read before the Philadelphia Academy of Surgery, January 7, 1894.

spleen, or kidneys are involved, death from hemorrhage may ensue in a very short time. Should the stomach, intestine, or bladder be ruptured, and its contents poured into the peritoneal cavity, death from peritonitis will result. In rupture of the mesentery the danger is from hemorrhage, yet, when the opening in the mesentery is small, a clot may form sufficiently large to control the bleeding. Should death occur under these circumstances it would be the result of peritonitis, caused by free blood in the peritoneal cavity. I shall report a case of this character in which recovery followed immediate operation. In ruptured extra-uterine pregnancy death is due either to hemorrhage or to peritonitis.

The usual history of these cases, with the exception of those of extra-uterine pregnancy, is that the patient has received a direct injury to the abdomen, which is found to be unaccompanied by external evidence. These injuries may result from railroad accidents, from being caught between cars, or from blows upon the abdomen received in various ways.

This class of injuries is quite common in military surgery, more so in the past, when spherical balls were used with only a low velocity. A majority were supposed to be caused by the violence of the wind displaced by the passing ball; but we now know that they were due to the impact of balls almost entirely "spent." Two cases that illustrate this occurred at the siege of Sebastopol. In neither did the clothing or the abdominal walls show any signs of injury, but in both the liver and spleen were comminuted to a pulp, and the intestines were extensively lacerated.[1] As yet we have had no reports from the surgeons of the armies engaged in the present strife between Japan and China, but it will be of great interest to read the records of such cases. We can expect, I think, a very full and detailed account from the Japanese surgeons. We have all applauded the work of some brilliant individuals of the Japanese profession, and, in fact, we must assign to Japan in medicine the same standing that she has taken in other walks of civilized life, and which she has demonstrated she can hold.

The most prominent symptom is pain, which is accompanied by shock, the degree of which is dependent upon the extent of the injury and the temperament of the indvidual.[2]

The pain is peculiar, and difficult to describe, but is readily recognized by one who has seen many of these cases, and by the patient himself. It is not that of ordinary intra-abdominal affections, but is described by the patient as if something had given way or ruptured, and is usually accompanied by a consciousness of impending death. It is usually accompanied by tenderness, which will be more or less localized, unless the ensuing peritonitis be general. In the early stages of the injury, when shock is most profound, the pain may not be so pronounced, and if large doses of opium be administered it may be masked throughout the course of the trouble. When vomiting is present it is usually associated with pain. Rarely does the vomited matter contain blood. There is often seen a characteristic rigidity of the abdominal walls which is due to intra-abdominal irritation. I have seen this so pronounced as to recall to mind the checker-board appearance of the normal abdominal walls as represented in the pictures of the early artists.

In the cases I have observed, consciousness has invariably been preserved for varying periods of time. Restlessness is not usual in the early stages, except in severe hemorrhage; but later on, when peritonitis develops, it is not an uncommon symptom. The pulse and temperature vary according to the degree of shock. The former is weak and running, varying from 100 to 160, and the temperature is subnormal. If reaction take place, the pulse becomes stronger and less frequent, and the temperature reaches the normal line. After reaction peritonitis is invariably the rule, and is accompanied by an accelerated pulse of high tension. The temperature under these circumstances is unreliable, as it does not correspond to the degree of inflammation or of septic infection. A high temperature with a slow pulse is less significant than a rapid pulse with a low temperature. In cases of septic peritonitis, in which autopsy has revealed a belly-cavity full of foul pus, I have seen the temperature run a normal course throughout the disease.

The part the sympathetic system of nerves, which has its largest distribution in the abdominal cavity, may play in injury to the abdomen is important in considering the differential diagnosis between simple contusion and contusion accompanied by visceral lesion. In the former, the absence of the severe and characteristic pain, of constant and persistent vomiting, of the anxious expression and presentiment of impending death, and of any evidence of loss of blood, associated with the occasional presence of suddenly developed meteorism, will usually be sufficient to establish the differential diagnosis. This condition of meteorism is due to paralysis of the muscular coat of the bowel consequent upon the concussion of the plexuses. There are cases, however, in which it is very difficult to say definitely whether there be a visceral complication or not. Under these circumstances one can only wait for a comparatively few

[1] Mr. Hulke, Lancet, December 31, 1892.

[2] I may say here that temperament and nationality have a strong bearing on the production of shock. Persons of a highly nervous temperament suffer more from shock than do phlegmatic individuals. For example, Americans are far more liable to suffer a severe degree of shock following injuries or operations than are Germans.

hours, when, if improvement is not apparent, the operative course is to be pursued. When the solid viscera are the seat of injury, hemorrhage will be the main source of anxiety. The pain and the exsanguination give the clue. If the patient should react, which is unusual unless the kidney is the injured organ, we shall find in addition dulness on percussion in the flank. Rectal or vaginal examination may afford aid in determining the presence of a collection of blood in the pelvis. The solid organs suffer most from external violence on account of their fixity, density, and close proximity to the bony structures. The liver is the most often injured, then the uterus, the spleen, and the kidney, in the order named. The stomach is least often injured, there being very few such cases on record. Dr. J. W. Goff (*Medical and Surgical Reporter*, 1892) reports a case of ruptured stomach following a horse-kick of the abdomen, and verified by an autopsy. The shock was profound, and there was vomiting with an absence of blood. The author states that he believes immediate operation would have saved the patient's life.

In the *Glasgow Medical Journal* for 1894, volume xli, Andrews reports a case of rupture of the stomach without external evidence of violence, in which all the symptoms of a serious visceral lesion were present, with the exception of vomiting. The rupture was in the anterior wall, was about an inch long, and involved all the layers. I cite this case as one of special interest, on account of the location of the tear and the absence of vomiting.

The liver is the organ most often affected, because of its position beneath the ribs and against the spine, and because it is held firmly in place by strong ligaments and bloodvessels. It is most commonly ruptured on its upper surface, generally in the right lobe, and in a majority of such cases the injury proves fatal. Dr. H. P. Loomis (*Medical Record*, January, 1893) reports a case in which the patient was struck on the right side by a pole protruding from the back of a wagon turning a corner, without external evidence of violence. There was a 3-inch tear in the right lobe of the liver and a pint of blood in the abdominal cavity. The patient died in the street from hemorrhage, before medical aid could reach him.

Mr. Battle (*Lancet*, 1894) reports a case of rupture of the bile-duct in a boy, six years of age, who was run over by a hansom cab, and in which there was but slight shock, without much pain or tenderness. Vomiting began early and persisted. On the fifth day slight jaundice developed. An operation was performed on the eighth day, and the abdominal cavity was found filled with bile. The boy died on the morning of the ninth day. At the autopsy the liver and gall-bladder were intact, but about one-half an inch beyond the junction of the cystic and hepatic ducts the common duct was found to be torn completely through. No other injury was found.

J. E., aged forty-six years, was admitted to the German Hospital on November 17, 1893, suffering from injuries received by being struck by a locomotive. He had a compound fracture of the lower jaw, lacerated scalp-wounds, and fracture of four ribs on the left side, with no other signs of injury. He died six hours later. The post-mortem examination revealed hemothorax of the left side. The peritoneum was not perforated or otherwise injured, but the peritoneal cavity was filled with blood. The spleen was completely comminuted, and the left kidney had been forced from its bed and was floating in the retro-peritoneal space. There was an extensive hemorrhage between the layers of the mesentery and a hemorrhagic extravasation in the posterior wall of the stomach.

H. M. C., colored, aged sixteen years, was admitted to the German Hospital on the evening of December 3, 1894. While playing about some moving freight cars he had been accidentally caught between the bumpers, sustaining an injury of the abdomen. Examination upon admission failed to disclose any evidences of external injury. The introduction of a catheter gave exit to clear urine. There was a moderate degree of shock, and the patient complained of severe pain in the abdomen and tenderness upon palpation. Further investigation proved negative.

The resident surgeon, not deeming the case of sufficient severity to send for me, treated the patient for shock. When I examined him the following day, it was very evident from the severity of the abdominal pain and tenderness, associated with very decided rigidity of the abdominal walls, that the patient was suffering from a serious intra-peritoneal lesion. I decided to open the abdomen at once. As soon as the peritoneal cavity was opened a large quantity of dark liquid blood escaped. The small intestines were delivered, when the cause of the lesion was found to be a ruptured mesenteric vein, the bleeding from which was arrested by the presence of a large diffused blood-clot occupying the interval between the layers of the mesentery. To make sure that there was no other lesion, the large intestine, the stomach, the liver, and the spleen, were carefully examined, but with a negative result. The abdominal cavity was washed out with warm saline solution, glass drainage was introduced into the pelvis, and the wound closed. Recovery was uninterrupted.

L. C., male, an Italian, aged thirty-five years, was admitted to the German Hospital with a history of a fall of about 50 feet, striking upon his abdomen. He was profoundly shocked and exsanguinated. The only external evidences of injury were some slight cuts on the hands and head. A diagnosis of internal hemorrhage was made, and the abdominal cavity was opened. Dark liquid blood escaped as soon as the peritoneum was opened, and the source was found to be the mesenteric vessels. The mesentery was torn half-way across, and the intestines were lacerated in four places. The mesentery was

united by a series of catgut ligatures, and the rents in the intestines were closed with Lembert sutures. The abdominal cavity was washed out with hot saline solution and closed. The man died two hours after the operation. The autopsy demonstrated several tears in the gut which had been overlooked, and several grapeskins and pieces of figs in the peritoneal cavity.

M. E., twenty-four years of age, a nurse, was admitted to the German Hospital, January 20, 1893. While lifting a heavy weight from an elevator she felt something give away in her abdomen. This was immediately followed by severe lancinating pain in the right ovarian region. She was menstruating at the time. Pelvic peritonitis promptly set in. An examination demonstrated a tumor in the right broad ligament about the size of a hen's egg. The peritonitis and tumor subsided under treatment, and she made a slow recovery. Diagnosis: Pelvic hematocele from rupture of an engorged ovarian vein.

The most common form of intra-abdominal hemorrhage is that resulting from ruptured extra-uterine pregnancy. While these cases may be due to traumatism without any external evidence, they are usually spontaneous. While hemorrhage from the pelvic organs of the female usually occurs from a ruptured extra-uterine gestation-sac, it may be due to other non-traumatic causes. Hematosalpinx may occur independently of pregnancy, and rupture either spontaneously or from traumatism. Again, degenerated bloodvessel-walls, and especially veins, may rupture under similar circumstances. Hemorrhage itself is seldom the cause of death, but, associated as it is with shock, the degree of which is out of all proportion to the severity of the accident, it is frequently fatal in a very short time. When the peritoneum is wounded, shock is still more profound, and is of the type known as peritoneal shock. Hemorrhage within the peritoneum is sometimes very slight, and distinctly localized, and may occur several times during the course of the illness. It may take place between the layers of the broad ligament, and soon stop from the pressure.

I report the following two cases of hemorrhage from my list of operations for ruptured extra-uterine gestation-sacs, as they illustrate so typically the wisdom of immediate operation:

Mrs. A. K., aged thirty-one years, was admitted to the German Hospital, September 21, 1894, with the following history: For six months prior to admission she had been subject to attacks of vertigo, pain in the back and limbs, and for six weeks there had been a constant bloody vaginal discharge. Examination revealed a retroflexed uterus, with a slight tear of the cervix, and the presence of a small movable mass behind and to the left of the uterus.

On September 25th, four days after admission, the patient was etherized, and the uterus was dilated and curetted. After the operation the discharge stopped, but the patient gained strength very slowly. She was advised to submit to abdominal section, but preferred to wait until she was stronger. On the night of November 22d she awoke with a severe pain in the right side, and on attempting to walk to the water-closet fainted. After returning to bed she again fainted, and went into collapse, the pulse becoming almost imperceptible, and the temperature falling to 96°. Under active stimulation she reacted. The diagnosis was made of internal hemorrhage from rupture of a probable extra-uterine gestation-sac.

The abdominal cavity was found filled with fluid blood and clots, and the right tube ruptured. The tube was ligated, and the abdominal cavity flushed with hot saline solution, a glass drainage-tube introduced, and the wound closed. The patient was not much shocked by the operation, but on the contrary seemed rather improved. The drainage-tube was removed on the third day; the wound healed by first intention; and the patient made a good recovery.

Mrs. J. W., aged thirty-six years, was admitted to the German Hospital, November 21, 1894, with the following history: About 2 o'clock on the morning of admission she was seized with violent pain in the lower abdomen. For this she took some whiskey, and was somewhat relieved. At 9 o'clock the same morning she started for market, and was suddenly taken sick, becoming very weak, and suffering from violent pain in the abdomen. She returned home with difficulty, and summoned Dr. Hand, who advised immediate removal to the hospital. At the time of admission she was very weak, and there was distinct tenderness over the abdomen, with slight dulness on the right side. Immediate operation was advised and assented to. When the peritoneal cavity was opened it was found to contain fluid blood and clots. The right tube was the site of a small rupture, and was ligated and removed. The abdominal cavity was washed out with hot saline solution, glass drainage-tube was introduced, and the wound closed. The patient was very much shocked by the operation and reacted slowly. During the operation hypodermoclysis was practised. The drainage-tube was removed on the fourth day; the wound healed by first intention; and the patient was discharged, well, on the twenty-third day.

The following case of hemorrhage from ruptured extra-uterine gestation-sac illustrates the danger of delay as strongly as do the two previous cases the efficacy of prompt interference:

Mrs. P., aged thirty years, was the patient of Dr. S. Cooke Ingraham, of Wissahickon, this city, who furnished the following history:

I first saw the patient on January 29, 1892. She complained of severe abdominal pains of a bearing-down character, and of a sense of fulness in the epigastric region. She had been married seven years, but had never been pregnant, and laughed at the possibility. For the past three years the menstrual flow had been decreasing in amount, and for several months past had been very scant. The breasts were slightly enlarged, but the areolæ were

not darkened. The glands of Montgomery were a little more prominent than normal. She had suffered from morning vomiting for the past month.

I was hastily summoned to see the patient on the morning of February 2d, and found her in a state of collapse, pulseless, and with a temperature of 96.5°. She reacted to active stimulation, and was sent to the German Hospital for immediate operation, a diagnosis of ruptured extra-uterine gestation-sac of the tubal variety having been made. Upon admission her pulse and temperature were normal. She did not complain of pain. Examination through the abdomen and by the vagina and rectum failed to reveal any mass, although a circumscribed area of flatness could be demonstrated low down and to the right side. She continued in this condition until February 12th, when, at her own request, she was discharged. On February 23d she was readmitted at Dr. Ingraham's earnest request. At the time of the second admission the abdomen was markedly distended, being tympanitic above and flat below, the pulse 116, temperature 101.5°. The woman complained of considerable pain.

The following day she was operated upon, and when the peritoneum was opened a fetus with clots and fresh blood gushed out. The ruptured sac occupied the right iliac region, and was tightly adherent to the neighboring coils of small intestine, to the cecum, and to the vermiform appendix. After a prolonged and tedious dissection the sac was enucleated. This was accompanied by very free bleeding, which necessitated packing of the cavity with gauze. The wound was closed with the gauze packing *in situ*. The patient died the following day of hemorrhage.

The immediate effects of an injury severe enough to cause a serious lesion of an abdominal viscus are sometimes so slight as to be misleading. Very often a patient with such a condition will walk to a conveyance or to the hospital, complaining only of a slight pain. In varying periods of time following the injury more decided symptoms will develop, viz., signs of hemorrhage if the solid organs be involved, and early peritonitis if the hollow viscera be ruptured or torn sufficiently to allow their contents to escape. When this occurs operation is imperatively demanded without delay. This is also true of hemorrhage consequent upon the rupture of an extra-uterine gestation-sac, be it traumatic or spontaneous. In ectopic gestation operation will be necessary in every case at some period in its history; therefore, if a diagnosis can be made or if even a well-founded suspicion of the condition exists, rupture should not be allowed to occur. If rupture does occur, however, immediate operative intervention is the only certain means of saving the patient's life. The longer the operation is deferred the greater the risk to life. Hasty operations, often necessitated by the patient's condition, are likewise less liable to reach a favorable termination. Blood-clots or intestinal or gastric contents cannot be washed out of the peritoneal cavity except by prolonged and repeated flushing.

The almost universal fatality of intra-abdominal lesions of traumatic origin is so well recognized that it seems as if there could hardly be any question as to the wisdom of opening the abdominal cavity. I would not be understood as meaning that abdominal section should be resorted to as a means of diagnosis; on the contrary, I believe that every known means, with attention to the most minute details, should be exhausted in establishing a diagnosis. When a diagnosis is impossible, abdominal section is justifiable only when it becomes the last and only chance for the patient.

I have refrained from using the terms exploratory and diagnostic incisions, believing that they not infrequently serve as a shield to cover a lack of diagnostic ability. It is a moral obligation resting upon every physician and surgeon to develop to the utmost of his ability the highest diagnostic attainments.

Aseptic surgery has undoubtedly been one of the greatest boons to humanity that the nineteenth century has brought forth. But to me it seems that it affords a great temptation to men who have not had experience and surgical training, and who have, therefore not fully developed their diagnostic skill, to perform operations which are not necessary for the patients' good or with scientific precision.

CLINICAL LECTURE.

A CASE OF MYCOTIC ENDOCARDITIS.

BY JAMES TYSON, M.D.,
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GENTLEMEN: The patient whom I present to-day is one of a class which unfortunately, often necessarily through difficulty of diagnosis, is recognized for the first time on the necropsy table. It is the case of a young girl, aged seventeen when first admitted to the hospital, December 7, 1893. She was born in Pennsylvania, and had been living at service previous to admission. Her family history is negative.

She has had the usual diseases of childhood, and when about eight years old had inflammatory rheumatism, and from that time has never been perfectly well. She says that every winter since she has had a return of rheumatism, and has been treated for heart-trouble more or less ever since her first attack. In the winter of 1892–93, after recovering from an attack of rheumatism and returning to work, she found that she had loss of power in the left arm and leg, On admission she complained of shortness of breath and a sense of tightness across the chest. She could not sleep lying down, because of palpitation and a feeling of suffocation. There was no edema of the feet or legs. There was evident loss of power in the left arm and leg, but sensation was unimpaired.

On physical examination, inspection noted a diffuse impulse in the neighborhood of the sixth interspace in the left mid-clavicular line; also a marked pulsation in the suprasternal notch. To palpation the apex-beat was found in the sixth interspace in the mid-clavicular line, strong and forcible, felt as far around as the anterior fold of the axilla. The impulse seen in the suprasternal notch was forcible to palpation, and a feeble thrill was felt at about the second interspace on the left side, and in the supra-sternal notch.

Percussion elicited relative dulness to the left of the sternum above the second cartilage as far as the parasternal line, and was succeeded by positive dulness at the third rib. The right border of the heart was found at the right edge of the sternum. Over the sternal region there was dulness from the second rib downward. Auscultation recognized a loud, rough steam-tug murmur, loudest at the second interspace on the right side, the systolic element conducted into the neck, both murmurs downward along the left of the sternum, the diastolic louder, and toward the apex. Both were, however, lost before the apex was reached, while at the apex itself appeared a loud systolic murmur, conducted very strongly into the axilla, and heard also at the angle of the scapula.

The pulse on admission was 90; respirations, 25; temperature, 99° F., essentially normal. The urine-examination found the specific gravity 1030; reaction acid; albumin, a small amount, but no tube-casts.

On further examination of the left arm and leg there was found to be no atrophy, and when asked to describe the condition herself the patient said: "When the left leg is drawn up it seems heavy; the same is true of the left arm." Moreover, she could not raise her left arm to comb her hair. When she walked the left toe continued to touch the ground after it should have been above it. The loss of power followed an attack of rheumatism, during which she was confined to bed. She had been working, however, over a month after the attack before she noticed the loss of power, and while she seems to think it came on gradually, it is more than likely that it was sudden. The tendon-reflexes show marked increase, on the left more than on the right; and the slightest tap upon the radius or ulna produced intense reaction. There was, however, no ankle-clonus. She remained in the hospital until about the first of June, improving slowly, but always very nervous, excitable, and restless. Pulse-tracings made at different times during her residence in the house furnish typical tracings of aortic regurgitation. The diagnosis was aortic stenosis with regurgitation. Her temperature throughout her stay was normal, except for temporary and explainable causes.

She was readmitted on the 11th of October, 1894, with a report that she had been miserable all summer, and gradually getting weaker. About three weeks before admission she commenced to have chills, followed by fever and sweats. This occurred every day, the chill beginning in the afternoon; the fever reaching its acme in the evening. In the morning she sometimes felt warm, and was always very short of breath. She said her legs had been more or less swollen all summer, the left more than the right; that she had more or less rheumatism, which also seems to have been worse on the left side. Her left arm was still almost useless, and she complained much of pain in her left thigh and ankle. There was also great shortness of breath.

Blood-examination showed hemoglobin 45 per cent.; corpuscles, 2,880,000 in each cubic millimeter.

On the day of her readmission, October 11th, at 3 P.M., her temperature was 105.6°; her respirations, 32; her pulse, 120. At 8 P.M. of the same evening, her temperature was 97.6°; her respirations, 24; and her pulse, 74. At 4 A.M. the next day her temperature was 102°, and fell by 8 A.M. to 99.4°. A similar rise occurred at 8 P.M. of the 12th, followed by a fall to 99.6° by 4 A.M. the next morning.

Reëxamination of her heart recognized very much the same condition of physical signs as at her discharge, except that there was further enlargement to the right, and a double mitral murmur instead of the single murmur in the mitral area present at her first admission. Thus the signs now pointed to double mitral disease, as well as double aortic disease.

This extraordinary history of daily chill, fever, and sweats, with the signs of valvular disease, at once suggested the possibility of malignant endocarditis, and we sought at once to eliminate other possible causes of symptoms so marked and striking. Accordingly, her blood was exhaustively examined by Dr. Daland and ourselves without finding any malarial organisms. She was at the same time placed upon full doses of quinin, twenty grains a day, for a number of days in succession, without producing any effect upon the chills and fever. These continued daily, and there would be at times two periods of acme in the twenty-four hours, with this further feature that the maximum might be noted at four o'clock A.M. one day, and again at four o'clock P.M. the same day, with an intervening fall. Still, on the whole, it seemed that the highest temperature was reached more frequently during the latter part of the day. At this time, also, her blood was examined microscopically by Dr. Abbott and Dr. Ravenel, of the Laboratory of Hygiene, for micrococci, with negative results, while cultures also made at the same time remained sterile.

Reëxamination of the chest, on the 25th of October, 1894, noted a decided dulness from the ninth interspace downward to the edge of the thorax and below posteriorly to the spinal column, and anteriorly to the mid-clavicular line. There was also absence of breath-sounds in the same locality, and an absence of vocal fremitus; though it was noted, also, that there was little or no fremitus on the opposite side. With a view to determining whether this dulness was due to an enlarged spleen or a pleuritic effusion, a small trocar and canula of an aspirating apparatus were introduced a few days later in the ninth interspace just within the line of the angle of the scapula, with negative results. We concluded, therefore, that the enlargement was splenic, and probably due to embolism.

The patient's strength is rapidly succumbing to the exhaustive effects of the fever and the virulence of the poison. She is growing rapidly weaker, is anemic, almost bloodless in appearance, while the temperature-range has become even more marked and astounding, as revealed by the appended drawing of the temperature-chart.

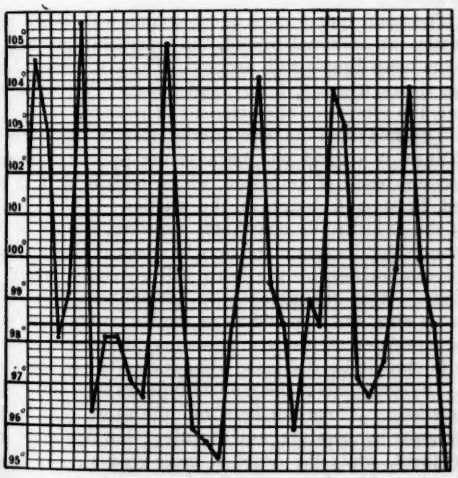
It will be observed, for example, that at 10 P.M. of the 8th of November the temperature reached 105.4°, while

by 4 A.M. the next morning it had fallen as low as 96.2°, a drop of 9.2°. By 6 P.M. it had again risen to 105°, followed by a fall to 95.2° at 4 A.M., or 9° in ten hours.

On the next day after the exploratory tapping there was a sharp pain in the abdomen, succeeded by diarrhea, which we suspected to be the result of another embolus lodged in some one of the intestinal bloodvessels, contributing, perhaps, to the extraordinary increase of the range of temperature noted.

For some days previously to November 13th there had been a small amount of albumin in the patient's urine and a few pale granular tube-casts. On this day, however, the albumin was found to be decidedly increased, and there were found in the urine numerous blood-discs and blood-casts, as well as pale granular casts. This was regarded as an indication that another infectious embolus had been shot off from the cardiac valves, and lodged this time in her kidney.

On the morning of November 14th, at seven o'clock, she called the nurse, and said that she could not move her right arm, and a few minutes later that she could not move her right leg; in a word, she was hemiplegic on the right side, the opposite of the primary attack of hemiplegia already noted as occurring previously to her first admission to the hospital. She remained conscious, and in the course of two hours there was complete return of motor power on the right side. The embolus was evidently small, and obliterated a vessel of corresponding size, whence the circulation was speedily reëstablished, and the hemiplegia was but transitory, while consciousness was not at all interfered with.



On the morning of the 15th two additional conditions presented themselves, also of great interest and importance. On her right hip was a large red blotch, nearly circular, two inches by two-and-a-half in diameter, evidently the seat of a blood-extravasation. Directly over the sacrum was another spot of the same size and character. This had occurred during the night, as at bedtime her skin was pure white and without a suggestion of discoloration. Evidently two emboli had been lodged in a bloodvessel of the skin, and the embolism was followed by the extravasation of blood beyond, constituting the well-known hemorrhagic infarct. During the next night another occurred in the same vicinity.

This history, including the chills, the marvellous temperature, the sweats, the signs of embolism in the brain, spleen, bowels, kidney, and skin, the rapidly growing anemia and general failure of health, in association with the signs of disease of both valves, admitted of but one conclusion, that the patient had mycotic or ulcerative endocarditis.

What, then, is mycotic endocarditis? It may be defined as an acute infectious fever due to invasion of the blood by a micro-organism and characterized anatomically by inflammation of the endocardium excited by the same organism. The disease itself has not been very long separated from others of like symptoms, except so far as the malignant nature is concerned. It was recognized as a separate form of disease, however, in 1851, by Senhouse Kirkes, though its mycotic nature was not discovered until comparatively recently, since Koch made his extraordinary discovery of the bacillus of tuberculosis.

I prefer the term mycotic endocarditis to any of the somewhat numerous others suggested, including ulcerative endocarditis, malignant endocarditis, infectious and diphtheric endocarditis, because it indicates the origin and nature of the disease better than any other, though the term malignant endocarditis, preferred by many, certainly gives a more accurate picture of the chief clinical features of the disease.

In the present instance the diagnosis is comparatively easy, because we have the history of a previous chronic endocarditis; and given such an endocarditis, with the supervention of the symptoms described and the elimination of a possible malarial cause, the diagnosis is at once apparent. The aid furnished by the preëxisting cardiac disease is not, however, always present. In a few instances the disease originates *de novo*, without the discovery of a previous cause or concurrent disease, constituting thus a true primary mycotic endocarditis. Fortunately, in the majority of cases, there is a concurrent infectious disease, which probably furnishes the infecting bacterium. Of such diseases pneumonia is the most frequent. The disease occurs also in association with gonorrhea, rheumatism, pleurisy, puerperal fever, bone-necrosis, and septicemia from any cause. More rarely it has been found in connection with meningitis, smallpox, diphtheria, scarlet fever, tuberculosis, and dysentery. The micro-organism that is directly responsible for the disease is usually that of the infectious disease responsible for the endocarditis. Most frequently, perhaps, it is the lancet-shaped bacillus of pneumonia, after this pus-organisms, the streptococcus and staphylococcus.

As to the acute cardiac lesions associated we find, in addition to the old sclerosis, three sets—vegetative, ulcerative, and suppurative. The vegetative are for the most part made up of closely packed spherical micrococci more or less commingled with small fibrin-masses. The vegetations vary in size from that of a pin's head to a pea, and are reddish-yellow in color. The seat of this vegetation becomes rapidly necrotic and breaks down into an ulcer which may perforate the valve, with or without previous protrusion, constituting in the latter event the so-called valvular aneurysm. More rarely minute foci of pus are found in the deeper tissues of the valve-

leaflets. The invasion is, however, not always confined to the valves of the heart, but may extend to the mural endocardium. Of the valves the mitral is most frequently involved; next the aortic; next both mitral and aortic jointly; next the lining of the heart-wall; next the tricuspid, and last the pulmonary valve. In a few instances the right heart alone is invaded. Other morbid changes include the lesions of the concurrent affection and the phenomena of embolism due to lodgment of fragments of vegetation. The resultant when complete is a metastatic abscess, though the earlier stages of red infarction may also be present. On the other hand, embolism is not invariable. It may be totally absent.

In this particular case we have had, however, a number of embolic lodgments, the first being that noted as occurring before admission and before the endocarditis had become malignant. You will remember that a part of the symptomatology narrated was, in addition to the left hemiplegia, a decided increase in the tendon-reflexes. We may pause for a moment, with advantage, to consider the explanation of this interesting phenomenon. The lodgment referred to evidently took place in the cortical motor area, in which is also seated an inhibitory control over the tendon and muscle reflexes, by means of which they are kept within bounds. The effect of the lesion was to destroy this inhibition, and the reins were, so to speak, let loose upon the reflexes, which became unmanageable and were increased to such degree that the slightest tap on the radius or ulna caused a very prompt flexion of the forearm on the arm or the periosteal reflex.

Of the embolisms which occurred subsequently to the invasion of the malignant form of endocarditis upon the simple form, the first we could definitely locate occurred in the spleen, resulting in the enlargement and tenderness already noted as present. A day or two later the event of a sharp abdominal pain, followed very closely by diarrhea, led us to believe that there was embolism of one of the intestinal bloodvessels. Next came the embolism of the kidney, as the result of which there appeared in the urine an increased amount of albumin, blood-corpuscles, and blood-casts, without, however, pain, which sometimes occurs in connection with renal embolism. Then we had the second cerebral embolism, slight in degree and temporary in the duration of its effects, occurring on the morning of the 14th; and finally the cutaneous embolisms just described as having happened some time during the night of the 14th and 15th.

In addition to these seats of embolic lodgment we may have also embolism and hemorrhagic infarct occurring in the lungs from emboli starting in the right heart, while those starting from the left heart are found in the systemic organs. The number of embolisms varies greatly in these cases. It has been already said that they may be altogether absent, while they may be counted by hundreds, in which event they are, of course, very small.

It is not often that we have so strikingly present the symptoms of ulcerative endocarditis shown by this case, and which make the diagnosis in this instance comparatively easy. It will be remembered that we had here a primary chronic valvular heart-disease, which at once suggests the invasion of the malignant form, if the chill and fever so irregular in type are added. Given, however, a pneumonia, a pleurisy, the puerperal process, and the supervention of a similar set of symptoms, this form of heart-disease should be immediately thought of and the heart carefully examined for the auscultatory signs of endocarditis. In the primary forms, though rare, we have not even the presence of one of the diseases named to suggest the occurrence of ulcerative endocarditis. Here the resemblance to intermittent fever is even more close, but a careful study of the temperature-chart from day to day, and above all the utter failure of the antiperiodic remedy to produce any effect, will in a short time show that the malarial disease is not present. I do not doubt, however, that very many times has the malady under consideration been mistaken for intermittent fever, and with reason, for many a case of irregular quotidian and tertian fever presents symptoms not more diagnostic. It always greatly aids the diagnosis when to these are added other symptoms suggesting the embolism which so frequently occurs. And the occurrence of a hemiplegia or pain in the region of the spleen, with increased dulness on percussion, or pain in the region of the kidney, with hematuria, or a sudden blotch in the skin of the kind described, is of inestimable importance in aiding the diagnosis. More rare symptoms of similar origin are impaired vision from retinal hemorrhage, parotiditis, and abscess of the parotid gland.

A further study of the symptoms of malignant endocarditis permits their classification into four groups, known as the *septic*, the *typhoid*, the *cardiac*, and the *cerebral*.

The *septic* type occurs in connection with septic processes, an external wound, the puerperal process, or acute bone-disease with necrosis. The symptoms added are rigors, irregular fevers, and sweats. Yet these are only the symptoms characteristic of pyemia. In fact, it is a pyemia; and the term arterial pyemia, suggested by Wilkes, is a good one, because the pyemic abscesses are the result of embolism, whose emboli start in the left heart and lodge in the arteries. The presence of the endocarditis constitutes a distinct feature of the disease, but its symptoms may be masked, though careful examination of the heart will generally furnish its signs. The resemblance to intermittent fever here exists also, and a quotidian or double tertian type may be simulated, or the symptoms may develop in persons with chronic heart-disease without external symptoms.

The symptoms of the *typhoid* type are even more characteristic. There are here too the same prostration, irregular temperature, and sweating; but rigors are less frequent, while the onset is more gradual. There are delirium, drowsiness, often looseness of the bowels, with distention of the abdomen and tenderness in the right iliac region, to which also a rash may be added, which, though not identical with that of typhoid fever, is nevertheless similar to it. The tongue is dry and brown, and sordes collects about the teeth. The temperature is remittent, like that of typhoid, reaching 103° and 104° F., and even higher. Here again the heart-symptoms may be overlooked.

In the *cardiac* type are included those cases in which there has been chronic valvular disease, on which has supervened fever, with rigors and sweats, and the symp-

toms of embolism described as having occurred in the present case.

The symptoms are not always as pointed as detailed, while they may include others not mentioned. The fever may not be as high, but it is always present; again, it may not be remittent, but continuous. There may be jaundice, precordial oppression, shortness of breath, while heart-symptoms may be altogether absent, when it is almost impossible to make the diagnosis or to distinguish the disease from a septic fever of the ordinary kind. The pulse and respirations are invariably accelerated. Albuminuria and casts occur in all forms, either as the result of acute nephritis or of renal embolism.

If there is anything peculiar about the physical signs, it is their want of definiteness. When murmurs are present it is often difficult to locate or time them precisely. They often vary from day to day. They may occur at both base and apex, and with reason, for both sets of valves may be and often are involved. The super-addition of pericarditis adds a further source of confusion in the friction-sound superadded.

Still another group is the *cerebral*, in which the symptoms simulate meningitis, basilar or cerebro-spinal, and acute delirium may be present, in marked contrast to the mental state of our patient, whose mind is very clear.

As to complications, these are mainly the original cardiac disease and the diseases that most frequently cause the mycotic inflammation. Pericarditis and pleurisy are frequent complications in the strict sense of the term. So is meningitis. Acute nephritis, the result of the poison of the microbe circulating in the blood and independent of embolism may be present, with all the characteristic symptoms, blood-casts, free blood-corpuscles, and pronounced albuminuria. Gastro-intestinal derangements are sometimes conspicuous when not of embolic origin. Diarrhea was especially troublesome in our patient.

The *diagnosis* is easy only in the cardiac group. A few days' study of the temperature, with its extreme fluctuations, the rigors and supervening sweats, should at once lead to suspicion, and these, if continued, mean only one thing. The other forms are not so easily recognized; but if one would always remember the possibility of the occurrence of malignant endocarditis in connection with the diseases named, it would be less frequently overlooked. The presence of concurrent disease should guard us against the conclusion that there is typhoid or rheumatic fever. Septic fever is essentially the same in all cases, the heart-symptoms adding the only peculiarity. In true typhoid fever there is always splenic enlargement and often parotiditis, so that the presence of these symptoms naturally suggests that disease, and an erroneous diagnosis is not inexcusable. It is said that splenic enlargement is not so marked as in typhoid fever, but in my experience it is quite as conspicuous, but there is commonly more tenderness in mycotic endocarditis. Rheumatic fever often more closely resembles malignant endocarditis, with its high irregular fever and copious sweats, while confusion is further contributed to by the fact that endocarditis is one of rheumatism's most frequent complications, the mycotic form being a possible though a rare instance. The joint-symptoms of rheumatism are, however, more conspicuous at an early stage of the disease, and recurring rigors are not usual in rheumatism; but there is no enlargement of the spleen, nor are there symptoms ascribable to embolism unless secondary to endocarditis. The ultimate failure of remedies in the malignant form settles the question. The essential identity of ordinary pyemia and malignant endocarditis has been mentioned, and only the endocarditis and its consequences, which make it different from ordinary septic fever, can suggest the true nature of the sepsis.

The prognosis is always unfavorable, though the disease may be prolonged for many weeks and even months. Usually, however, five or six cover its course, while some cases are of shorter duration. Eberth reports one fatal in two days.

Treatment unfortunately avails little. The patient should be kept at rest. Remedies should be restorative and supporting—quinin, stimulants, digitalis. Nourishing food is indicated. The high temperature may be treated by sponging or by an ice-cap or by Leiter's coils applied to the thorax or abdomen; but it is seldom of so long duration as to require special treatment.

AUTOPSY AND COMMENTS THEREON.

A few days after the foregoing lecture was delivered the patient died, and an autopsy was secured. The diagnosis was fully confirmed in the finding of a greatly hypertrophied heart, whose valves, both aortic and mitral, were richly beset with characteristic vegetations, the aortic lunulæ being further eroded to nearly half their extent. The kidney and spleen, on the other hand, presented lesions which, while not identical with those foretold in the lecture, were still of a kind consistent with the primary conditions and most interesting and instructive. The kidneys, instead of being the seat of embolism as expected, because of the sudden hematuria, blood-casts, and increased albuminuria, were found to be the seat of a typical acute hemorrhagic nephritis, a frequent complication and the direct result of the action of the infectious organisms. The spleen contained four hemorrhagic infarcts; yet these were all old, being opaque, white, and much reduced in size, and could not, therefore, have been responsible for the acute enlargement of the spleen recognized before death and found at autopsy. The organ weighed 480 grams and presented on section an intensely bright-red surface on which stood out with distinctness the white dot-like Malpighian bodies, easily visible to the naked eye. The liver was much enlarged, weighing 1700 grams. The brain was not examined.

The Treatment of Diphtheria with the Antitoxin.—SOLTMANN (*Deutsche medicinische Wochenschrift*, 1895, No. 4, p. 53) reports that from April 1st to December 31st, 193 cases of diphtheria were treated in the Children's Hospital in Leipsic, with 50 deaths, a mortality of 27½ per cent. During the last five months of this period, when most of the children were treated with the antitoxic serum, there were 22 deaths among 122, a mortality of 18 per cent. Among those treated with the serum the mortality was 14.6 per cent., while among those treated with other measures the mortality was 27.2 per cent. In the first four months there were 28 deaths among 71 cases, a mortality of 39.8 per cent.

CLINICAL MEMORANDA.

HYDRO-PYONEPHROSIS:

Successful Removal of a Forty-Pound Tumor of the Kidney.[1]

BY JOSEPH TABER JOHNSON, M.D.,
OF WASHINGTON, D. C.

IN the latter part of last April I was called to see Gen. John B. C., of Missouri, in consultation with Drs. Peter and Sowers. The patient was found sitting in a large easy-chair, with a pulse of 120, a temperature of 102.5°, and an enormously distended abdomen. The man was sixty-three years of age and had inherited and possessed, until five years ago, a remarkably good constitution. He had been a General in the late war and had undergone much fatigue, exposure, and privation, having slept in swamps and lived at times on the shortest rations; his health, however, had remained good. For ten years after the war he was a member of Congress, and for six years clerk of the House of Representatives. He has since and does now occupy a prominent position under the government at Washington. About five years ago he first noticed evidence of failing health. A lump appeared in his right side in the region of the liver, and was supposed up to the date of the operation to be caused by enlargement and abscess of that organ.

The lump rapidly increased in size, and the patient gradually lost flesh and strength until the date of the operation, when he could not have weighed more than eighty pounds. At no time did he suffer from pain, and only a few weeks with fever. He was supposed at one time to have malaria, at another time inflammation of the liver, and later on the diagnosis was hepatic abscess, the tumor having acquired such dimensions as to make locomotion and the performance of official duties no longer endurable. The patient was tapped on the 3d of last April, and about four gallons of ascitic-looking fluid were drawn off. The last part of the fluid was stated to be brown or more chocolate-colored, and was said to contain pus. The tumor rapidly refilled and was tapped again in two weeks, when only one gallon of purulent-looking and bad-smelling fluid was drawn off. The abdomen was not much reduced in size at the second tapping, and a third attempt was made shortly after this, but the fluid was putrid and too thick to run through the canula.

About this time the patient began having irregular chills, sweats, rapid pulse, and high fever, and it was determined, if possible, that a radical operation should be performed. At this point in his history I was requested to see the patient. His urine had been examined several times. The report had always been the same, that, whatever disease he had, his kidneys were all right, nothing ever having been found during these five years to indicate kidney-trouble. The diagnosis in my mind lay between hydatid cyst of the liver and hydronephrosis.

The patient was taken to Providence Hospital, and was operated upon on the 9th of May last. A six-inch incision was made in the median line as in ovariotomy. The cyst was found closely adherent to the abdominal wall. It was punctured at the upper angle of the wound, and between four and five gallons of most offensive gray pus drawn off. So offensive was this fluid that some of the physicians present climbed up to the upper seats of the amphitheater and opened the windows. The cyst was thoroughly washed out with an antiseptic fluid before separating the adhesions. One plan had been to empty and disinfect the cyst and pack it full of iodoform-gauze. This was found to be impracticable, as it would have taken half a bushel to fill it. The only course left was to enlarge the incision and to enucleate the sac. When the adhesions had been sufficiently separated to pass the hand up to the liver, this organ was found to be perfectly healthy and in no way connected with the tumor. The origin of the growth was then traced back to the right kidney. The only choice left was a complete nephrectomy, which was accordingly done. Numerous adhesions were tied for fear of hemorrhage. The vessels in the pedicle were tied separately. The ureter was traced down very near the bladder and tied, cut, and dropped. The entire tumor, fluid and solid, weighed about fifty pounds. The abdominal cavity was then washed out and closed up in the usual way. A glass drainage-tube was left in. This was removed in twenty-four hours. The patient had a smooth and uneventful recovery. A curious feature about the case is the large amount of water from the remaining kidney. Thus on the first day were passed twenty-four ounces, on the third and fourth sixty-four ounces, and on the sixth day six quarts. Soon after this the quantity settled down to the normal, and has since remained so.

I saw the patient last week, and he reports himself as feeling better than he has for ten years. He has gained over sixty pounds in weight and is attending to his business without any difficulty.

There are several points of interest in this case, to wit: failure of a number of good men to make a diagnosis, though the patient was under observation for nearly five years; failure of repeated examinations of the urine to detect the slightest evidence of disease of the kidney (the only explanation that I have to suggest is that the disease at the time of analysis and subsequently had so destroyed the function of the kidney as to prevent the escape of any urine at all, and that the specimens examined all came from the other organ, which fortunately was healthy); failure of such large quantities of foul-smelling pus to produce more sepsis; absence all through the history of pain and fever; the median-line incision, the separate ligation of the renal vessels, and the ligation and dropping of the ureter.

I am aware that the lumbar incision is preferred by nearly all nephrectomists, and that they often bring out the cut end of the ureter and fasten it in the abdominal wound. While the lumbar incision may be best in small tumors and otherwise diseased kidneys, it certainly could not have succeeded in a case of the magnitude of the one just reported, not only on account of the great size of the tumor, but also because of its being so extensively adherent to the omentum and abdominal wall. The colon had to be carefully separated from the anterior surface of the tumor.

While this was a very large hydronephrosis, which after tapping became a pyonephrosis, it was not so large by twenty-five pounds as one I removed for Dr. Bed-

[1] Read before the Southern Surgical and Gynecological Association, November, 1894.

ford Brown in Alexandria, Va., which was mistaken by us all for an ovarian tumor. In that case the tumor weighed seventy-four pounds.

CASE OF SUPRA-SPINOUS DISLOCATION OF THE RIGHT SHOULDER, PRESUMABLY OCCURRING AT BIRTH.

BY BERTHA LEWIS, M.D.,
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IN August, 1894, Joseph S., eleven months old, was brought to the Neurological Department of the Philadelphia Polyclinic, as the mother had been told her baby's right arm was paralyzed. A critical examination by Dr. J. W. McConnell and myself revealed the fact that there was no loss of power in any of the muscles of hand or forearm, but that there was fixation at the shoulder. The case was at once referred to the orthopedic department of the same hospital, when I again saw the case in conjunction with Dr. J. Torrance Rugh. The mother gave the following history:

The child was born September 23, 1893, the labor being long and difficult; the forceps was used to deliver the head of the child; delivery of the shoulders was delayed and difficult, force being again required, but the history is not clear whether the fingers or a hook was applied. When the child was born it was too badly bruised to admit of handling, and had to be rolled in cotton. On the second day the nurse called the doctor's attention to the limp condition of the right arm, but no attention was given to it, the mother says, further than to assure the family that "the arm would be all right in a short time, that it was a little injured from pressure."

Nothing was done until the end of the third week, at which time the family physician returned to the city, and the mother called his attention to the arm. He examined it and applied a bandage, placing the arm approximately in the Velpeau position. This treatment was continued for two months, at the end of which time the condition of the arm was not improved. The mother's anxiety was not allayed by the assurance that the arm would come right in time if she did nothing, and that only a nerve had been injured. The mistrust in this wise (?) counsel brought her to the neurological department as already stated.

Examination in the orthopedic department showed fixation at the right shoulder, the head of the humerus protruding above the spine of the scapula posterior to the acromion process and being firmly fixed in this position. The head and neck of the humerus could be clearly outlined, the muscles being very flaccid from lack of use. The marked anterior rotation of the humerus in its long axis produced an exaggerated pronation of the forearm and hand.

The child was put under ether for a more complete diagnosis and the reduction of the deformity, because of the limited motion and the long duration of the deformity. Firm fibrous ankylosis was anticipated, but when complete relaxation was obtained, and the scapula fixed, extension applied to the arm caused the head of the humerus to slip easily into the glenoid cavity. No adhesions had formed; rotation, adduction, abduction, all movements were free. Then came the problem of maintaining the correction, as we had to deal with abnormally contracted muscles and ligaments posteriorly, and the reverse or greatly relaxed muscles and ligaments anteriorly.

The unique method was suggested by Dr. Rugh, of applying a plaster-of-Paris bandage with the arm in position in which the deformity had been reduced—namely, that of extension laterally, the arm and forearm on a plane with the trunk and on a level with the shoulder. This was done; pressure was made in the plaster-of-Paris, while soft, at a point posterior to the acromion and below the spine of the scapula. The plaster-of-Paris bandage was carried to the wrist. This dressing was removed on the eighth day, when it was found that the head of the humerus had slipped a little posteriorly. The arm was then slightly over-extended posteriorly to the plane of the trunk, and a second plaster-of-Paris bandage was applied. In this, as in the first application, the bandage was carried around the trunk, over the shoulder, and down to the lower angle of the scapula, over the right arm to the wrist. The child was restless for the first two nights, but was quiet and comfortable afterward.

This treatment was continued for eight weeks, when the bandage was finally removed, and the arm maintained nearly a normal position. Owing to the long period of inactivity, for the part had never had any normal period, there is slight stiffness at the shoulder. Supination is difficult, and pronation is greatly exaggerated. Movements, with massage and electricity, have been used in the subsequent treatment. Passive movements in all normal directions, and massage of the muscles of the upper arm and shoulder, have been practised on each visit of the child to our clinic, and the mother has been instructed to practise massage daily.

This has been a very unusual as well as an interesting and instructive case. I have been unable to find any report of a case of supra-spinous dislocation occurring at birth. Most authorities claim that the supposed cases of dislocation have been fractures or separations of the epiphyses from the shaft of the humerus, but we are certain that we had a case of supra-spinous dislocation of the right humerus, as the head of the bone was distinctly outlined above the spine of the scapula, and had it been a fracture or an epiphyseal separation, reduction could not have been accomplished so easily and completely.

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CEREBRAL FUNGUS—EXCISION AND CAUTERIZATION OF PEDICLE—RECOVERY.

BY HENRY M. KELLER, M.D.,
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ANDREW W., aged twenty-eight years, was admitted to the hospital October 2, 1893, with a compound fracture of the frontal bone, immediately over the left frontal eminence. One week before admission he had been struck on the head with a beer-bottle. The physician in attendance had treated it as an open wound; no attempt had been made to elevate the depressed bone, and the wound was

packed with lint. On admission the patient was perfectly conscious, the pulse 80 and full, the temperature 98.4°. An examination revealed a depressed fracture three-and-a-half inches long, by one inch wide; the wound was infected. The man was immediately prepared for operation, the trephine applied, and a large section of depressed bone removed. The dura was found torn and the brain-substance lacerated. Some lacerated brain-tissue was removed, the wound thoroughly cleansed and catgut drainage inserted. The patient reacted from the operation, and the following three days the temperature-range was between 98° and 100.4°. On the third day the dressings were removed and a small amount of pus was found. On the seventh day a rapidly growing fungus had torn out several stitches. The remaining stitches were now removed in order better to cleanse the pus-covered fungus. The growth had by this time attained the size of a small hen's egg. Compression by means of gauze-pledgets was now employed, and was kept up for twelve days, with no diminution in the size of fungus. The man became dull, had a vacant expression, would not talk to his friends, and on several occasions failed to recognize his brother. The temperature never rose above 100°, and the pulse was slow. Having failed to accomplish anything by compression, on October 21st, or the nineteenth day after his admission, he was placed under ether and the growth was cut off on a level with the skull. The pedicle, which was quite broad, owing to the large size of the fracture and loss of brain-substance, was cauterized with a Paquelin cautery; the wound was thoroughly cleansed and packed with iodoform-gauze and dressings were applied. After operation the temperature fell from 99.6° to 98°. The mental condition remained about the same for a period of a week or ten days, and then began to improve. The wound was repacked every second day until the discharge ceased; the edges of the scalp were then freshened and brought together, several strands of catgut being still used for drainage. A slow recovery followed, and on December 18th the man was discharged from the hospital, the wound having healed entirely and the mind being perfectly clear. This case is presented as being of interest merely from the fact that a complete cure was effected by excision of the growth and cauterizing of its pedicle.

PATHOLOGIC NOTE.

SOME NOTES ON THE USE OF FORMALIN AS A MORDANT IN ANILIN-STAINING.

BY A. P. OHLMACHER, M.D.,
OF CLEVELAND, OHIO.

THE idea of using formalin as a mordant in anilin-staining occurred to me quite by accident. Some tuberculous sputum for use in the laboratory-classes was procured two or three days before the exercise, and, with a view of preserving it and of destroying the vitality of the tubercle-bacilli, a plug of cotton was impregnated with a few drops of formalin and secured in the top of the tall, wide-mouthed, screw-cap jar containing the sputum. In this way the vapor of the formalin alone could penetrate the sputum. When this sputum was distributed for class use it was not visibly altered in appearance, although it smelled strongly of formalin. The cover-glass preparations, made in the usual way, were stained with Ziehl's carbol-fuchsin, and decolorized with a 25 per cent. sulphuric-acid solution containing 1 per cent. of methylene-blue (Gabbet's method). I was surprised to find, in the hands of all the members of the class, that the bleaching and counter-staining solution had utterly failed to decolorize the preparations in a few seconds, as is usually the case. A longer application of the decolorizing solution was advised, with no benefit. Thinking the decolorizing solution at fault, a fresh solution was prepared and distributed. Still the red color of the fuchsin persisted, even though the powerful decolorizing solution was allowed to remain five minutes in contact with the preparation. The preparations were mounted in despair and examined. It was found that the stain was retained by the pus-corpuscles, both in their nuclei and protoplasm, and by the tubercle-bacilli. The other bacteria and the mucus were stained with the blue. On the occasion of this laboratory-exercise the preliminary exposure of the sputum to formalin-vapor was quite forgotten, and I could not account for the strange behavior of the staining experiments. Pondering on the subject, the idea of the formalin being responsible for the trouble occurred, and with it the suggestion that, if the formalin was responsible, it was due to a very powerful mordanting effect of its vapor. Two samples of tuberculous sputum were now examined, one previously exposed to the vapor of formalin for twenty-four hours, the other not so treated. The same staining method as previously outlined was employed, and the formalin-sputum repeated in every way the peculiarity of the class-room sample, while the control-sample stained and decolorized in the usual manner. Thus the idea of using formalin as a mordant in anilin-staining was suggested, and experiments were at once set afoot. As my routine work at this time has to do with bacteria, most of my experiments with formalin have been made on this class of objects.

Formalin may be employed in bacteria-staining preceding one of the ordinary dyeing solutions, as, for example, carbol-fuchsin, anilin-water gentian-violet, and aqueous methyl-violet and aqueous methylene-blue. For this purpose a 2 per cent. or 4 per cent. aqueous solution of formalin is used. The fixed film of a cover-glass preparation is treated for one minute with the formalin-solution, washed with water, and stained one minute *in the cold*. Conducted in this manner the staining is much more intense than when the dyes are employed without the mordant; in fact, it is possible to stain in the cold with the aid of formalin and produce better effects than when heat is employed in the old way. The advantage of this feature is evident, for no one can deny that the heat employed in our routine bacteria-staining is a bad element.

Aside from its use as a mordant preceding other staining solutions, formalin may be employed as the base for staining solutions, just as anilin, carbolic acid, etc., are employed in the standard formulæ.

A formalin-fuchsin that appears to keep well may be made by adding 1 gram of fuchsin dissolved in 10 c.c. of absolute alcohol (*Fuchsin für Bacillenfärbung*, Grübler) to 100 c.c. of a 4 per cent. aqueous formalin-solution. This solution stains energetically in the cold.

Formalin-gentian-violet may be made by adding to a 4 per cent. aqueous formalin-solution a saturated alcoholic solution of gentian-violet (Grübler), in the same proportion as employed in making the Koch-Ehrlich anilin-water solution of this dye.

A formalin-methyl-violet is made like the gentian-violet solution, except that a saturated alcoholic solution of methyl-violet (*5 B.*, Grübler) is used.

Formalin-methylene-blue can be made by dissolving 1 gram of methylene-blue (*Methylen-blau nach Ehrlich*, Grübler) in 100 c.c. of a 4 per cent. aqueous formalin-solution. All of these solutions appear to be as permanent as the corresponding mixtures of other formulæ.

All of these mixtures are powerful stains for bacteria, even when employed without heat. It has not been possible as yet to devise specific stains for certain bacteria with the aid of formalin-solutions; but much may doubtless be accomplished in this direction. The few experiments that I have made in flagella-staining with formalin have been negative, though there is reason to hope that on account of its powerful mordanting action this agent may, with certain procedures, become a valuable aid in staining the motile appendages of bacteria. In spore-staining, also, the field for the employment of formalin is inviting.

In tissue-staining, for general or special purposes, the formalin-anilin solutions promise to be of great utility. The formalin-solutions of fuchsin, gentian-violet, methyl-violet, and methylene-blue may all be used in tissue-staining. Most of my experiments in tissue-staining have been confined to the formalin-methylene-blue solution (formula already given). Sections of anthrax rabbit tissue fixed in absolute alcohol, Carnoy's chloroform-acetic-alcohol, or Hermann's solution, and affixed to the slide by the water-albumin method, were stained half a minute with the formalin-blue, washed in absolute alcohol, cleared in xylol, and mounted in xylol-balsam. On account of the mordanting effect of the formalin, the methylene-blue remains in the tissue with great persistency, and there is no danger of washing it out with absolute alcohol, as is commonly the fault. These preparations exhibit a beautiful dark-blue and precise nuclear staining; the bacilli stand out sharply with a stain so intense as to appear almost black, and red blood-cells, when present, stain a curious yellowish hue. Karyokinetic nuclear figures in the splenic tissue were stained very prettily and sharply with the blue. This staining succeeded with the tissue fixed in the three different fixing solutions.

A curious effect was obtained when safranin (*O wasserlöslich*, Grübler) was dissolved to saturation (in the cold) in a 4 per cent. aqueous formalin-solution. The anilin-water solution of this dye is a powerful and precise nuclear stain when used by the indirect method of anilin-staining; but the formalin-solution proved to be a *plasmatic* stain, comporting itself in all essential particulars like eosin. A section of the kidney of the anthrax-rabbit, stained first with formalin-methylene-blue, and then with the formalin-safranin, gave a beautiful double stain. The protoplasm of the renal epithelium stained light-red; the chromatin nuclear framework a reddish-blue; the nucleoli a deep-blue; and the bacilli, in the glomeruli, were rendered very prominent by their heavy stain.

In connection with methylene-blue staining it is suggested to those particularly engaged in neurologic work that formalin may be found to be a mordant and preservative that will prove of great aid in fixing this ideal stain in the nervous elements, and in preserving these specimens.

From these observations, based on introductory experiments, it is evident that formalin promises to be a very valuable and widely useful agent in microtomy. A great many experiments with this new mordant will naturally suggest themselves to specialists in the various departments of microscopic laboratory-work.

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MEDICAL PROGRESS.

Castration for Prostatic Hypertrophy.—SWAIN (*British Medical Journal*, No. 1775, p. 12) has reported the case of a man, seventy-three years old, who for five years had suffered from difficulty in passing urine. During the greater part of this time he was compelled to use a catheter to empty the bladder. On several occasions he had received treatment for retention, and a number of times the urine had contained blood. Six weeks before coming under observation the man had suffered a "stroke," and subsequently the bladder-symptoms had been much aggravated. He was compelled to rise four times during the night to pass urine. There was considerable pain in the bladder, and the use of the catheter was constantly necessary.

The man came under observation for the relief of retention. A soft catheter was introduced, and the urine, which was decomposing and contained a large quantity of blood, was withdrawn. By rectal examination the prostate was found to be very hard and prominent, and about as large as an orange. It was impossible to touch the top of it with the finger. Subsequently the catheter could not be introduced, and the bladder was aspirated above the pubes. On the third day a metallic prostatic catheter was passed, which traversed the urethra for nine-and-a-half inches before the urine began to flow. The considerable depression of the handle that was necessary suggested that the middle lobe, as well as the lateral lobes, was much enlarged. For about ten days the bladder was irrigated night and morning with boric-acid solution, and, although the urine contained very little blood and was less fetid, the prostate did not diminish in size and the patient was gradually getting worse.

The kidneys were presumably healthy, as the total amount of urine excreted daily was about normal. Double castration was proposed and accepted. In consequence of the decomposition of the urine it was necessary to continue the irrigation of the bladder for three weeks after the operation, but on the seventh day the patient passed a small quantity of urine of his own accord, and this gradually increased in amount, so that when the washing out of the bladder was stopped he passed all his urine naturally. Coincidentally with this, his general condition improved and the prostate gradually became smaller. There was a perceptible diminution in the size of the gland at the end of the first week after the operation; but in the third, fourth, and fifth weeks the increasing atrophy appeared to progress more

rapidly. In three weeks after the operation the patient began to get about, and in five weeks he was dismissed.

At this time his general condition had greatly improved. His urine was normal; he sometimes passed half a pint at a time, but he could not hold his water for more than four or five hours in the daytime. There was no residual urine in the bladder; the prostate was comparatively soft and about the size of a large horse-chestnut. If a catheter was introduced, it passed easily, and urine began to flow along it when a distance of eight inches from the orifice of the urethra had been reached and without any more depression of the handle than is usual. Thirteen weeks after the operation the patient had been able for eight weeks to dispense with the use of the catheter, and was not compelled to arise at night. He was free from all difficulty in emptying his bladder, and the urine was normal in appearance and odor. On rectal examination the prostate was found to be rather smaller and firmer than at the previous examination.

RICKETTS (*Medical Fortnightly*, vol. vii, No. 2, p. 33) has reported the case of a man, seventy-four years old, who was much distressed by greatly increased frequency of micturition, associated with great pain and disturbance of sleep. Attempts to introduce a catheter had been unsuccessful. After relief of the immediate symptoms, and keeping the patient under observation for ten days, bilateral orchectomy was performed. The patient bore the operation well, and suffered no inconvenience or pain thereafter. On the second day after the operation urination was easier and sleep was better. The patient was dismissed on the sixth day much improved.

Hypertrophic Macrochiria of the Right Arm.—CHASSIOTIS (*Monatshefte für Praktische Dermatologie*, vol. xix, No. 12, p. 674) has reported the case of a man, twenty-five years old, who came under observation on account of a deformity of the right upper extremity which had been present from birth. He related that he had been able to use the member until twenty years of age, particularly the fourth and the little fingers, which, though apparently atrophic, were of physiologic size and form. During an imprisonment for some transgression at this time he observed the right hand to become swollen, and from fear of an unfavorable result asked to have the member amputated. The right upper extremity had become so enlarged that, to maintain his equilibrium in standing, the patient was compelled to incline his head toward the left side.

The enlargement began anteriorly at the outer margin of the pectoralis major, above the acromion, posteriorly at the upper extremity of the outer margin of the axilla, and appeared to involve, down to the elbow-joint, only the anterior and external aspects. The tissues of the part were flabby. Sensibility was preserved. From the elbow-joint to the root of the hand the enlargement presented a certain degree of induration, though upon the inner side the muscles and bones were palpable. The hand retained somewhat the form of a normal member; the thumb and the index and ring fingers were enormously enlarged, and sensibility was lost upon the palmar aspect of their third phalanges. The skin of the palmar surface was hard and presented a peculiar rose tint. Upon examination of the amputated member the increase seemed to involve all of the constituent structures.

Removal of Partially Encysted Dumb-bell-shaped Calculus by Lithotomy.—At a recent meeting of the Philadelphia Academy of Surgery Dr. H. R. WHARTON reported the case of a child, five or six years of age, in which on examination a stone was found in the bladder. Some hesitation was for a time felt as to what operation should be performed. Litholapaxy was decided upon, but when the child was etherized there was felt on rectal examination a prolongation of the bladder into the rectum containing the stone. Lateral lithotomy was then undertaken, and after exposing the stone and attempting to grasp it, it was found impossible to remove it, as the posterior portion was thoroughly surrounded by the wall of the bladder. The stone was dissected out with the finger without breaking it. The patient did perfectly well after the operation.

THERAPEUTIC NOTES.

Sodium Fluorid for Tuberculosis in Infants.—As the result of a clinical study BOURGOIS (*Bulletin de l'Académie Royale de Médecine de Belgique*, 1894, No. 11, p. 874) arrives at the conclusion that sodium fluorid exercises a useful influence upon infants either predisposed to tuberculosis or already tuberculous. The good results obtained were permanent, and in several cases recovery had been maintained for several years. The doses employed varied from .0001 g. (gr. $\frac{1}{7}$) to .005 g. (gr. $\frac{1}{14}$) daily in fractional parts, and were proportionate to the chronicity of the disease. When the good effects of the treatment become apparent the dose may be reduced, and finally omitted, unless the amelioration does not continue, when the original dose should be resumed. No disadvantage was observed from the use of the drug, which appeared perfectly inoffensive, and was well borne.

The Treatment of Obstruction of the Bowel by Electricity.—ALTHAUS (*British Medical Journal*, No. 1778, p. 188) has reported the case of a man, fifty-four years old, who for three months had suffered with obstinate constipation. At the time of coming under observation the bowels had not been moved for ten days, and the abdomen was distended and tender. The appetite was lost, and a condition of collapse existed, with sunken face, and a small, feeble pulse. The introduction of a long tube proved unavailing, and electric treatment was resorted to. An insulated sound, with a free metallic end, was introduced into the rectum, and a moistened conductor applied to the abdominal parietes, chiefly in the region of the sigmoid flexure. Through this circuit a primary faradic current was passed, and its force gradually increased until the patient experienced a decided feeling of vibration in the bowel. In the course of the day a copious intestinal evacuation ensued, with wonderful relief to all of the symptoms. During the next two days the bowels acted ten times, and in the course of a week the patient appeared to be quite well. A second case, in a woman fifty-seven years old, is cited in which a like result was obtained from similar treatment.

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THE BRITISH TITLE "DOCTOR."

IN Great Britain it is notorious that the people are somewhat of precisians in their methods of styling one another. There are definite laws regulating the procedure in addressing all the different grades in the peerage and hierarchy, while the titles appropriated to the members of the branches of the public service are very exact. It is, therefore, a little bewildering to our notions of uniformity to find that the rules according to which it is correct or incorrect to address a medical man as "Doctor" are by no means clear. We are talking of professional and scientific society, of course, and not of society at large, which, correctly or incorrectly, will always call the medical man "Dr.," without any intention to confer upon him an unearned university degree, but solely as a ready method of calling the attention of the company to his status or of singling him out for identification. And before laying down exactly who is and who is not in England entitled to prefix "Dr." to his name, we cannot refrain from pointing out the awkwardness of the fact that all medical men in the United Kingdom are not allowed by custom to call themselves "Dr." under all circumstances. It is inconvenient when a desire to be accurate entails the necessity of always alluding to any one member of the medical profession as a physician or surgeon, instead of being able to lump his titles under the generic term "Dr.," for the word "practitioner" does not cover the whole of the profession, but is restricted in its use for the designation of those in general practice in contradistinction to those whose work is purely consultant.

In Great Britain the only persons in the medical profession with a clear right to prefix "Dr." to their names are those holding the diploma of Doctor of Medicine in the Universities of England, Ireland, and Scotland; and these gentlemen for various reasons form but a small percentage of an overcrowded profession. The Universities of England, in order of seniority, which can confer the degree of Doctor of Medicine upon their medical graduates are Oxford, Cambridge, Durham, London, and Victoria; those of Ireland are Dublin and the Royal University; and those of Scotland are Edinburgh, St. Andrew's, Glasgow, and Aberdeen. The possessors of the degree of Doctor of Medicine obtained at any of these eleven universities have a clear and indisputable right to be styled "Dr.," and although, as we shall see, there are numerous circumstances that entitle others to use the same style, they must be held to do so rather by concessions of courtesy than by right.

The value of these eleven different diplomas, viewed from the point of the severity of the tests to which their holders have been exposed, varies infinitely; but indisputably the London degree is the hardest to acquire. Again, education at either of the two preëminently ancient seats of learning carries with it a certain social prestige. For these two reasons it is to be observed that the graduates of London, Cambridge, and Oxford generally add London, Cantab., or Oxon. to the M.D. affixed to their names. It is not, however, imperative in the Doctor of Medicine to signify the body which granted him his degree. It is purely a matter of individual choice and taste. To some it would appear that, for the very reason that certain degrees are harder to obtain than others, taste should impel the holders of the more readily won titles to confess their origins; but on this point there is no law. Nor could there very well be any law, unless definite conclusions could be arrived at as to which are the readily won titles, and any attempt to formulate conclusions on this point would inevitably cause much bad feeling, while the result would be entirely unconvincing.

Doctors of Medicine in the eleven universities have a clear right, and the only quite clear and indisputable right, to be officially styled "Dr."—of course, in their character of medical men—in Great Britain. In addition to the degrees conferred by these eleven universities there are gentlemen practising the medical profession in England who possess the degree of Doctor of Medicine from recognized foreign universities. These gentlemen would be entirely correctly addressed as "Dr." in professional circles. But it must be understood that to a certain degree such a method of addressing them is an act of courtesy, as their doctorates would not appear on the register of the General Medical Council of Education and Registration, the body which in Great Britain has the control of all these matters; and were they not otherwise qualified, that is, in possession of diplomas from some of the recognized licensing bodies of the United Kingdom, they could not practise their professions, save under the disabilities entailed by being absent from the register. It is unnecessary to go into more detail. We need only say that the number of foreign universities whose degree of Doctor of Medicine is recognized in the United Kingdom as a legal registerable title, and not as an appanage to other legal registerable titles, is now very small.

We now come to a very large class whose legal and moral title to the style of "Dr." has never been questioned, but who really have no right whatever to the style, and enjoy it solely by courtesy. These are the Bachelors of Medicine of the eleven universities already enumerated. It is not difficult to understand how this has come about. In some cases there is little but a question of fees between the Doctor of Medicine and the Bachelor, and it has then been generally felt that it would be a hardship to a young man to prevent him from enjoying a title which he has mentally earned until he could pecuniarily obtain it. Again, certain of the universities impose a not too brief term of years between the granting of the M.D. degree and the earning of the M.B. degree, and this period is one in which a young man making a start ought decidedly to be allowed to avail himself of every proper opportunity of letting his professional brethren and his future clients know his status in medicine. If he has the moral right at this time to call himself "Dr.," he ought to be allowed to do so. Sometimes there is an examination to be passed; generally this takes the form of a thesis or dissertation, though at London and Cambridge Universities there is a written examination. We have now exhausted the list of persons who have a right to be called "Dr.," having attempted to divide them into two classes, those with a legal right and those with a right by courtesy. But the broad question: Who do you call "Dr."? is not so easily settled, and any one who should be guided solely by the simple rules we have laid down would promptly find himself in error. To begin with, no pure surgeon in London, Edinburgh, Dublin, or the large provincial centers ever calls himself "Dr.," although he may have, and for that matter very generally does have, the qualifying right. In Great Britain the pure surgeon is always addressed as Mr. Thus we have MR. HULKE, President of the Royal College of Surgeons, and M.D. Lond., but "Mr.," essentially "Mr.," as a pure consulting surgeon. In the provinces, on the other hand, it may be in quite large towns and in the centers of important populations, it will often occur that the pure surgeon, so far as his line of practice goes, will elect to be called "Dr.," if he possesses the right to the title. That is to say, he will decide upon using the exactly opposite style to that affected by his metropolitan brethren. This may be for various reasons; the usual one is that as a young man he was known as "Dr." to the countryside. It was as "Dr." that he made his reputation and obtained his practice and the position that enabled him to leave general practice, and so, when deciding to confine his work to purely operative surgery, he very naturally leans to his old title, which has hitherto stood him in good stead. As germane to this point, we may refer to the position of the obstetric physician, who is certainly and largely an abdominal surgeon. These gentlemen prefer to style themselves "Dr.," and in some cases do not possess any particularly good surgical diploma; yet much of their work is purely surgical, and could be no more dependent upon medical erudition and tact than that of the general operating surgeon. So much for persons who can be styled "Dr.," but prefer to be addressed as "Mr.," and persons whose work should really mark them off as more fitted for the purely surgical style of "Mr.," but who like to call themselves "Dr."

We now come to a class who are very usually styled "Dr.," and have, from a professional point of view, no right whatever to the title. These are the gentlemen whose professional title would only earn them the appellation of "Mr.," but who possess, in

addition, a degree entitling them to style themselves Doctor of something else other than medicine. There are on the *British Register* persons holding nearly every sort of title which can give the right to assume the prefix of Doctor. There are not many Doctors of Divinity, but there is at least one, and he is a bishop. There are many more medical men in Great Britain who have the title Doctor of Laws, and now that the impulse given to State medicine is so very great there, it has become comparatively common for medical men to be called, in addition to their profession of medicine, to the bar, a proceeding that we may expect to see result in the title of Doctor of Laws being united still more frequently with medical degrees; but it must be remembered that it is not a common title, and that the bodies granting it are few in number. The recognized method in all the universities of Great Britain of honoring a man is to confer a degree upon him, and it so happens that those degrees are nearly always such as would entitle a man to style himself "Doctor," generally Doctor of Letters, and a good example of the pitfalls into which the uninstructed might fall will be furnished by mentioning one or two names. MR. HUTCHINSON, for instance, remains "MR." HUTCHINSON, because he is a pure surgeon; but he holds the degree of LL.D. Cantab., conferred upon upon him as a recognition of his distinguished services to science. He is "Dr.," undoubtedly "Dr.," and it is most undoubtedly incorrect to style him so. MR. ERNEST HART, again, as a member of the Royal College of Surgeons, is properly styled "Mr.," but he holds the honorary degree of D.C.L. Durham, in recognition of his position as editor of the official journal of the British Medical Association, which met at Newcastle (the seat of the Durham Medical School) in the year 1893. MR. HART is undoubtedly "DR." HART, but it is equally undoubtedly wrong to style him so.

It is a blessing for the precise man, the man who is uncomfortable unless he addresses people by their proper style, to remember that in Great Britain these honorary degrees are in most cases so rigidly reserved for the distinguished man that it is usual for their recipients to enjoy, either at the time of their creation or shortly afterward, some higher title in which, according to English etiquet, the minor question of "doctor" or no doctor is entirely merged. Either as knights or baronets the medical holders of honorary degrees generally settle the question of how they should be addressed by having the right to be termed Sir, as SIR JOSEPH LISTER, SIR WILLIAM JENNER, and the first and last of which, had they not been baronets, would have been good examples of individuals styled "Mr.," with the right to be styled "Dr." also.

We have now exhausted the list of those who, rightly or wrongly, by law, courtesy, or mistake, can by styled "Dr." in Great Britain *qua* medical man. We have not considered it worth while to count the names in the *British Medical Directory* with a view of ascertaining what proportion these three classes bear to the whole list; but it is safe to assert that it is a very small one. It is safe also to assert that the majority of medical men in Great Britain and Ireland have not, either by legal position or by etiquet, the right to style themselves "Dr." That they are very largely so called has nothing to do with the case. The title is purely colloquial, and used, as we have already indicated, for social purposes, to signal out its possessor and place him at once in his proper position in the company. The word "Doctor" in such a connection simply means "medical man," and is not intended to confer either a doctor's degree or university status upon its possessor. In precise writing the titles of "Dr." and "Mr." are rigidly allocated to their proper possessors, and as a rule the medical profession among themselves endeavor to observe this precision, and the man who is "Doctor" to the whole country-side will be "Mr." to his professional colleague, who knows his proper style; but even in professional circles we have noted one or two tendencies to condone a wrong use of title out of deference to the individual position of the bearer. These cases have always been when the wrongly styled man occupied some public or official position, generally some Government appointment, wherein he is in association with other officers bearing lay titles. Thus the head of a county lunatic asylum is generally granted the title of "Dr." It marks him, without further explanation being required, as the medical officer in charge of the institution, in contradistinction to the chairman, the visiting justice, the chaplain, the steward, the matron, and the rest. Similarly the prison-doctor and the medical officer of health often obtain from their professional brethren the recognition of a title which really has its origin in expediency, not law. It is probable that the element of professional jealousy may account for this anomaly. When one offering his services to a community, and possessing the legal right to

call himself "Dr.," is in rivalry with two or three professional brethren not having that right, it is probable that professional jealousy—using the term without the slightest element of reproach—will urge him to enlighten the community to the fact that he is the real "Dr.," and that the others should be styled "Mr." Now, no one is in rivalry with the prison-doctor or with the medical superintendent of an asylum. They are in charge of a department, and have nothing to gain from the outside public, and there is no personal or pecuniary reason for desiring to deprive them of a title that is intended for convenience. The same attitude, we may add, was observed until a few years ago by combatant officers toward their brethren of the Army Medical Staff. But since the Army Medical Staff began seeking after strange titles their brethren, medical and military, who used to call them "Dr.," in recognition of their official position, now term them "Mr.," adding in a parenthesis that they believe that one for instance is a major-general, for how can such a cumbrous title as *Brigade-surgeon Lieutenant-colonel* ever come into familiar use?

Enough has been said to show that the simple question who should and who should not be styled "Dr." is not very simple to answer. We have only to add that those who consider it worth while to carry in their heads the foregoing rules will not go wrong; while those who do go wrong in their methods of address toward their professional brethren in the United Kingdom will find that the wrongly addressed will bear no malice, for they are daily used to it among their own folk. They are wrongly styled in all the newspapers, are habitually addressed in all law courts by titles they neither have nor aspire to, and are fortunate if their own widows and children fail to describe them wrongly upon their tombstones or memorial tablets.

EDITORIAL COMMENTS.

Total Resection of the Stomach.—We have a number of times recently had occasion to advert to the almost boundless possibilities of modern aseptic surgery. The success of the results obtained is rendered effective not only by the skill and improved technique of the surgeon, but in not a little degree by the prodigality of Nature in making such provision that when the function of one organ is for any reason diverted or lost it can be taken up by some other one or more. Thus the removal of important organs in whole or in part is rendered possible, as not being incompatible with the continuance of life. Such a condition finds its parallel in morbid anatomy, and instances are not rare in which large parts of organs and even entire viscera have been destroyed by disease without causing immediate death. It is, however, only within modern times that the more radical excisive operations have been attended with any reasonable degree of success. Thus, large portions of no less important organs than the brain, the liver, the lungs, and entire kidneys and spleens have been successfully removed. It has also been possible to prolong life and in some instances to effect a permanent cure by the excision of malignant neoplasms from the stomach and intestines. Two most remarkable cases of this category have recently been reported by LANGENBUCH (*Deutsche medicinische Wochenschrift*, 1894, No. 52, p. 968), and seem to indicate a new era in visceral surgery. In both cases resection of the stomach was performed for the relief of gastric carcinoma, with recovery in one and death in the other. In the latter the fatal issue was due to a complication only remotely connected with the operation.

The first case occurred in a woman fifty-eight years old. The stomach was found unusually small and contracted. The new growth occupied largely the posterior wall, although several small nodules were also present upon the greater curvature and had extended to the great omentum. The liver and the adjacent lymph-glands were uninvolved. The peritoneum was removed from the curvatures and a crescent-shaped section, including the nodules, was excised from the greater curvature. The stomach was now withdrawn from the abdominal cavity as far as possible and the abdominal wound closed by sutures. Gauze was carefully packed around the extremities of the stomach to prevent subsequent infection of the peritoneum. The pyloric and cardiac extremities of the stomach were now ligated through healthy tissue with tapes, and finally about seven-eighths of the stomach removed with scissors. Hemorrhage was controlled by digital compression. The circumference of the cardiac section being the larger was first somewhat reduced by suture and the free margins were united. The newly formed stomach had a capacity corresponding to the volume of a hen's egg. The pyloric portion was withdrawn as far as possible and fixed in the abdominal wound, partly by means of sutures and partly by means of iodoform-gauze. But a small amount of chloroform had been used in the anesthesia, although the operation occupied one-and-three-quarters hours.

The woman was soon able to take milk, and later the yolk of an egg with sugar, with no discomfort. In the course of the following day liquid nourishment was repeatedly given. The temperature, however, rose, and the frequency of the pulse increased. The patient appeared to be lost, although there was no evidence of peritonitis or other inflammatory process referable to the wound. The temperature and pulse, however, subsided, and the further progress of the case was entirely satisfactory. After the third day the patient was able to take meat, and when dismissed, after the lapse of several weeks, she had gained twenty-two pounds in weight, although in the interim she had been attacked with pneumonia.

The second case occurred in a woman, fifty-six years old. The stomach was so softened that despite the greatest care in its removal, rupture took place at the

cardiac extremity. The small opening, however, was at once closed by suture. Resection was performed as in the preceding case, and the remains of the stomach likewise fixed extra-peritoneally. The sutures introduced failed to hold, and on the third day after the operation the dressings were found soiled with gastric contents. It soon became evident that an insufficient amount of food reached the bowel, and the patient, already greatly emaciated, grew worse and worse. An attempt was made to introduce a tube through the gastric fistula into the duodenum, but the efforts necessary, on account of the resistance at the pylorus, led to such disturbance in the relations of the parts that a local peritonitis resulted and death took place on the sixth day.

Upon post-mortem examination the inflammation was found to have been restricted to this localized area and not to have involved the peritoneum generally.

The Riverside Baths of New York.—We had the pleasure of referring a few years ago (THE MEDICAL NEWS, September 19, 1891, p. 334) to "The People's Bath," and indirectly pointing out the advantages and utility of the privilege thereby afforded, both from the moral as well as from an esthetic point of view. It was to be expected that such a praiseworthy undertaking would be imitated and extended, and the outcome of events has justified the expectation, though not, perhaps, to the degree that is desirable. At any rate the work has proved so successful in New York that it has been taken up by an organization devoted to the interests of those for whom the baths are especially intended.

The Riverside Association is a New York institution, whose object is to aid and elevate workingmen and encourage self-dependence among them. Recognizing that the essential principle of all sanitation is cleanliness, the association has taken practical steps to enforce this principle. Among the useful measures directed toward this end is the establishment of public baths accessible to workmen and their families for a nominal pecuniary consideration. At first a number of small baths on the principle of the rain-bath were built, and the results were at once so salutary that later a larger bath was constructed with facilities for about three-hundred and-fifty bathers a day. The rain-bath is to be preferred in this connection to any other form of bath for obvious reasons. No water is actually wasted, and each bather is provided with a fresh supply. The bathing paraphernalia practically cleanses itself, so that the necessity of assistants for this purpose is obviated.

The bath-house of the association consists of thirteen compartments built of corrugated iron below and wire netting above, for ventilation and light. These are covered with white enamel paint, and present an inviting, clean, and fresh appearance. A portion of each compartment is adapted for a dressing-room, and the remainder for the bath-room proper. A period of twenty minutes is allowed each bather, soap and towels being furnished, and the charge for the privilege is five cents. The popularity of the rain-bath is fully attested by the fact that over eighty-thousand persons availed themselves of the privileges of the People's Baths during last year.

The association has also provided Turkish baths, which may likewise be had at moderate cost. A complete apparatus for the therapeutic employment of water has further been constructed, and opportunity is thus afforded physicians of sending suitable cases for treatment.

We cannot speak too highly of this undertaking of the Riverside Association, which deserves the warmest encouragement and support. As the work is, of course, not self-supporting, the association must look to the generosity of philanthropic people for aid in carrying it on and extending its usefulness as the demands upon it increase. The annual fee is $5.00, which may be sent to that indefatigable advocate of water in the prevention and treatment of disease, Dr. Simon Baruch, who is chairman of the Committee on Hygiene.

Venereal Disease in the English Navy.—Judging by the report of the Director-general of the Medical Department of the English Navy for the past year venereal disease is playing sad havoc in the service. There occurred during the year no less than 9321 cases of syphilis and gonorrhea; 3106 of primary syphilis, 1593 of secondary syphilis, and 4622 of gonorrhea and its sequelæ. The number invalided for these diseases was 198, and there were five deaths. 4923 of the cases came under observation at the home station. The ratio of primary syphilitic patients amounted to 51.66 per 1000, as compared with 74.28 in the previous year. The time that the venereal patients were incapacitated from duty amounted in the aggregate to no less than 282,171 working-days. Apart from its moral aspect the subject is one demanding the most profound consideration. With the figures given before us it is difficult to understand why less attention should be directed to the prevention of venereal diseases than is given to that of other transmissible diseases.

The American Academy of Medicine holds its next meeting in Baltimore, May 4th and 6th, and not, as erroneously given in our issue of February 2d, on May 8th. The new line of work undertaken by the Academy has proved of great interest to the members, has excited comment throughout the medical world, and, we doubt not, will prove of great value in the future to the community and to medicine. It is a distinctive and unique function that is now assumed, and one of profound and growing importance. The problems growing out of the dependent classes and of the mutual relations of these classes to the medical profession and to the community give ample scope for lasting labor and best thought on the part of all conscientious physicians. Every eligible physician should join the Academy and contribute his mite to this much needed work. An exceptional program is already promised, and unusual interest is evident in the next meeting.

The Transmission of Typhoid Fever through Vegetables.—The recent agitation upon the subject of the transmission of typhoid fever through oysters has raised the point of the even greater danger of transmitting various infectious diseases through vegetables, such as water-cress, lettuce, and the like. Water-cress more particularly, it has been pointed out, is grown for the most part in beds where it is in contact with the water of rivers and streams that have doubtless often been contaminated

with sewage, or it may flourish in a wild state and often in stagnant and unwholesome ponds and ditches. Cases are also on record in which typhoid fever was believed to be transmitted by the use of contaminated vegetables, but the evidence is unsupported by bacteriologic examination.

Gratitude to the publisher of the British Medical Journal is due from his readers for promptly acting upon our suggestion to improve the quality of the paper of the foreign edition. But we are sorry our old friend the *Lancet* persists in its fatal course. We cannot read or quote it so long as printed on such atrocious paper!

SELECTION.

MEDICAL SCIENCE VERSUS HUMANITY.

IT is not often that a conflict arises between the humane treatment of a fellow-creature and the desire for knowledge whose ultimate purpose is the relief of suffering humanity. In a certain kind of fiction and in the sensational reports of college experiments and of clinical operations with which the press occasionally seeks to startle and entertain its vulgar patrons, the medical student and his teacher appear in an unfavorable light. Yet the credence placed in such "literature" must be slight, or a genuine hostility against the profession would be engendered. The falsity of such reports is, best of all, shown by the confidence which is reposed in the medical attendant by the very writers of the alleged horrors of the clinic and the amphitheater.

The profession as a whole must plead guilty to the charges of the various societies for the prevention of cruelty to animals, although such charges are usually greatly exaggerated, the intent of the experimenters ignored, and the innocence of the vast majority of the profession entirely overlooked.

But in regard to the treatment of patients, the exhibition of cruelty or negligence is a rare exception. Even those physicians who are generally recognized by their colleagues to be thoroughly selfish and to be restrained neither by fear of God nor love of man, are often the very ones to whom a patient might most safely intrust himself, skill and ambition taking place of benevolence and devotion. We recall a man, despised by his associates who knew him, hated by internes and justly feared by nurses, who nevertheless maintained a large practice and was almost worshipped by many of his patients. Such men, however, are the exception. It seems that the average man upon entering the practice of medicine assumes virtues and a sense of his responsibilities that he would not have attained in any other lifework.

In striking contrast with this estimate of our own medical profession, we note in German literature a tendency to what seems to us a frank and wholly unconscious brutality. For instance, an abdominal section is made to inspect a liver, notwithstanding the almost positive diagnosis of hypertrophic sclerosis. Two pathologists, examining semen-stains in preparing testimony in a case of rape, express their profound gratitude to Professor So-and-so for allowing them to inoculate a culture suspected to contain gonococci into the urethræ of two paralytics in the hospital ward of the latter. Another report describes the antagonistic action of acid solutions on the development of the germs of chancroid, fifteen persons having been inoculated in two places each, one sore being treated as indicated, the other being simply covered with a watch-glass in order to secure a control-experiment.

Such a tendency is to be deprecated, not alone on the ground of sentiment, but because the habit of study purely scientific, as opposed to an endeavor at the same time to relieve suffering, blunts the perception to just those facts that are to be of vital importance to the practical physician. It is the neglect of the humane consideration of his patients that has made the typical German physician a poor therapeutist. The fact that the average medical article in a German magazine contains an elaborate history of cases, an exhaustive discussion of etiology and pathology, an exact though brief synopsis of symptoms and physical signs, a mere allusion to treatment, and, as a matter of course, a minute report of the findings post-mortem, is an index to a trend of medical thought that is opposed to the very existence of a medical profession. It is this trend that has, to some extent, justified the epithet "Hod-carriers of Science," as applied to our German brethren. It has brought about the purely mechanical consideration of the diseased human body. It is logical, if a man is too hot, to plunge him into cold water. The stimulating action of both heat and cold is ingeniously utilized by inducing labor by the alternate administration of a hot and a cold douche. Yet such logic needs the tempering of common sense. Just such therapeutic suggestions as these have led one of the shrewdest of American physicians to say, "I distrust on general principals any therapeutic method originating with the Germans."

We have no sympathy with those who attempt to cover their ignorance of fundamental facts in medicine by denouncing scientific study as impractical. Such men give digitalis in cardiac hypertrophy and aneurysm and try to overcome ether-poisoning with injections of alcohol. Neither do we intend to incriminate the whole German profession, nor to ignore the vast debt of gratitude which we owe them. Nor, again, do we advocate a neglect of scientific study and a return to the benevolent but ill-guided ministrations of a semi-medical priesthood. Let us realize, however, that the ultimate aim of all medical investigators must be practical—in other words, humane. Wherever advantage may be taken of suffering already existing, it is right—indeed, it is a duty to do so. But we cannot condemn too severely the man who inflicts damage to gain information. Occasional infringements on the law of humanity will react on the medical profession to the extent to which they are known by the laity. A general following of such examples will remove our very reason for existence as a profession.—*Editorial in Medical and Surgical Reporter, January 26, 1895.*

Dr. B. W. Palmer, of Detroit, Mich., and for a number of years editor of the *Medical Age*, died on January 4th.

That Day is Lost when St. Louis does not organize a new medical school. The latest is known as the "Practitioners' School of St. Louis."—*Medical Record,*

REVIEWS.

A MONOGRAPH ON DISEASES OF THE BREAST, THEIR PATHOLOGY AND TREATMENT, WITH SPECIAL REFERENCE TO CANCER. By W. ROGER WILLIAMS, F.R.C.S., late Surgeon Western General Dispensary, and Surgical Registrar Middlesex Hospital. With seventy-six figures. 8vo, pp. 572. London: John Bale & Sons, 1894.

THE history of opinion and practice in regard to diseases of the breast strikingly illustrates the change that has come over surgery within the past quarter of a century; the transition from vague pathologic theories, uncertain diagnosis, and inefficient treatment, to clearer understanding and more thorough procedure, so that the surgeon of our day can approach his task with a confidence, and his patient may submit with a hope, unknown to those of any former time. But our limited space forbids us to dwell upon this pleasant theme. That the statement made is correct will, we think, appear as we take up some of the chief points presented in the very admirable work now before us.

A very clear and interesting account is given of the anatomy, morphology, and physiology of the breast and nipple, of their anomalies of defect and of excess, and of abnormities of secretion. In the chapter on polymastia, a section is devoted to the neoplasms arising in supernumerary mammary structures.

The histology of the breast in its resting and active stages is described, and the ground is taken that the pathologic neoplastic processes are aberrant repetitions of those of normal development. Such morbid formations are classified according to their derivation, whether from the archiblastic or epithelial, or from the parablastic or connective-tissue elements of the gland. But in reality both tissue-systems are almost invariably represented in every mammary neoplasm.

Carcinomata, properly so called, are of archiblastic origin. They are divided into the acinous, which are by far the more common, and the tubular. They are all more or less malignant; that is, they have an inherent power of continuous undue increase, owing to the indefinitely sustained, excessive proliferative activity of their constituent cells. Their alveoli differ from those of the normal breast-structure, chiefly by reason of the greater number and the disorderly grouping of their component cells. Hence the ancient belief that there was something specific—a "cancer-cell"—was erroneous, and the long search for it was vain; there is departure from the normal type of development, but no foreign structure is produced. According to Mr. Williams, the only real carcinoma and tumor germs are certain cells that abound in all parts growing and capable of growth, and which never become highly developed, but remain in a more or less unspecialized condition.

The chapter on the general pathology of mammary carcinoma is full of interest, especially the section relating to the influence of heredity. Facts are presented showing that this can be traced, either in a direct line or collaterally, in a large proportion of cases; as, for example, in 33 of 136 consecutive instances (24.2 per cent.) of which the author analyzed the records. On the other hand, the causal importance of traumatism is declared to have been greatly overestimated. The author says: "In the vast majority of cases the outbreak of this disease (cancer) appears to be entirely spontaneous; that is to say, it cannot be attributed to the immediate action of any appreciable extrinsic cause whatever."

Another section in this same chapter contains a most remarkable showing, which we quote:

"Prior to 1837, when the Registration Act came into operation, we have no reliable information as to the prevalence of cancer. In 1840 it caused 2786 deaths, the proportion being one in 5646 of the total population, one in 129 of the total mortality, or 177 per million living; in 1890 the deaths due to it numbered 19,433, being one in 1480 of the total population, one in 28 of the total mortality, or 676 per million living. Thus the proportionate mortality from cancer is now about four times greater than it was half a century ago."

It must be remembered that these figures refer to the mortality from carcinoma generally—not from breast-carcinoma alone. The author goes on to say that the number of persons now suffering from carcinoma in England and Wales must be at least 40,000, as against about 5500 in 1840, an increase of something over 600 per cent. Upon what data this estimate is based, other than official records, does not appear.

The curious fact is noted that according to the same records the increase of carcinoma-mortality has affected males much more than females. From 1851 to 1890 it was, as to the former, 167 per cent., but as to the latter it amounted to only 91 per cent.

Another singular statement is that a marked decline in the mortality from pulmonary and other forms of tuberculous disease has coincided with the increase of that from carcinoma. We are not aware whether any other country can furnish statistics for comparison in regard to the results now quoted.

The modern thorough operation for carcinoma of the breast, first suggested by Mr. Charles Moore in 1867, and ably advocated by our brilliant countryman, the younger Gross, is fully described. At present the results obtained by early recognition of the disease, and by the complete removal not only of the gland itself but of all outlying masses and processes, with absolute cleanliness, are far more creditable to the profession, and vastly better for their patients, than those of the best operators of any former period. What changes may yet be devised for its improvement cannot of course be foreseen; but in its present form it imperatively demands universal adoption.

The statistics given by our author as to the relative length of life in cases operated on and in those left to themselves are very strongly in favor of interference as the rule.

We would gladly discuss other portions of this work, which is full of evidence of the intelligent research and painstaking labor devoted to its preparation. The various forms of non-malignant breast-tumors, the axillary neoplasms, and the inflammatory disorders as observed in both sexes, are described at length and with many illustrative case-histories. But we have reached the limit of space allowed us, and can only hope that this brief notice will serve to induce a general study o one of the most important of recent contributions to surgical knowledge.

It is to be desired that in any future edition the proof-

reading will be more carefully done. Many typographic errors offend the eye; in one instance the omission of the word "no" inverts the significance of a case quoted from Bryant.

RELATIONS OF DISEASES OF THE EYE TO GENERAL DISEASE. By MAX KNIES, Professor Extraordinary at the University of Freiburg. Forming a supplementary Volume to every Manual and Text-Book of Practical Medicine and Ophthalmology. Edited by HENRY D. NOYES, A.M., M.D., Professor of Ophthalmology and Otology in Bellevue Hospital Medical College, etc. Octavo, pp. 470; illustrated. New York: William Wood & Co., 1895.

THERE are two or three titles to this book, with decided differences of meaning. "The Eye in General Disease," has to our mind a very different meaning from "The Relations of Diseases of the Eye to General Diseases." The editor says of the book that "the alliances between the eye and the rest of the body are so admirably traced, etc.," and in the author's preface the function of the book is repeatedly emphasized as the setting forth of the relationship between diseases of the eye and diseases of the rest of the body. Despite all this, we are astonished to find that the second sentence of the book reads as follows: "It is rare to find eye-diseases[1] the starting-point for diseases of the nervous system." Observing that this rule consciously or unconsciously is the governing idea of the whole volume, we conclude that the titles, one and all, are utterly misleading. There is no attempt whatever to treat of ocular abnormalities as the cause of extra-ocular disease; on the contrary, there is a disbelief in the fact. The book treats solely of extra-ocular disease as productive of ocular abnormality, and is a valuable gathering of facts pertaining to this restricted field of study. But it must not be forgotten that the title of the book is inverted and wholly misleading. The author knows nothing, at least not a word in the volume would betray the knowledge, of ametropia and abnormalities of ocular balance, either as ocular diseases *per se*, or as capable of setting up disease elsewhere. Now, it is precisely these ocular diseases and their extra-ocular reflexes that occupy nine-tenths of the time and the attention of many American ophthalmologists. One finds no hint in the index or in the text even of headache as caused by eye-strain. It is the same with all reflex neuroses starting in the eye. The exhibition of this astounding oversight in a book written with evident conscientiousness and scientific purpose shows how far apart are to-day the two great schools of ophthalmology. Thousands of articles and facts are utterly ignored by such writers as the author in order to preserve the apparent consistency of a prejudice. The writer who in 1894 pretends to set forth the relations of ocular and general disease without even mentioning the fact of headache, and of functional, gastric, assimilative, and nervous abnormalisms of a hundred kinds due to the eye, should spend an hour in a good refractionist's office, and then go home and keep silent for the rest of his mortal or immortal life.

We would also protest against the non-honoring of the translator. Scholarship should have its reward, not only of pay in money, and the reader should also have the guarantee of a name, that the translation is well done.

[1] The hyphen is omitted in the original, as almost everywhere else that a compound term is used.

TEXT-BOOK OF ANATOMY AND PHYSIOLOGY FOR NURSES. Compiled by DIANA CLIFFORD KIMBER, Graduate of Bellevue Training School; Assistant Superintendent New York City Training School, Blackwell's Island, N. Y.; formerly Assistant Superintendent Illinois Training School, Chicago, Ill. New York and London: Macmillan & Co., 1894.

THE appearance of a text-book on anatomy and physiology, prepared especially for the use of nurses, in which can be found a clear and systematic arrangement of both subjects, will be heartily welcomed by both teachers and pupils of training schools. For, while by its aid the teacher will be saved an infinite amount of trouble and time spent in rearranging notes, in looking up references, and in making long explanations, which she can occupy much better in perfecting her lectures, the pupil will be enabled to follow the oral teaching with much greater ease and intelligence.

Looked at from another standpoint, such a book as that of Miss Kimber's may be regarded as one of the favorable signs of the times, in that the very necessity for its publication would go to show the high standard of education which is now expected of a nurse trained on broad scientific principles. Even the doctors have now ceased to declare that a knowledge of the anatomy and functions of the human body is not essential to the highest type of nurse, since they have found that the more intelligent the nurse, the more valuable her assistance and the more reliable her work, especially in the face of an emergency. Certainly in the past more than one life might have been saved when the nurse was left alone to deal with cases of severe hemorrhage had she known the location of the bleeding vessel and when compression should be made in such cases, and this is only one of many instances that might be cited.

Of late years physicians have very properly laid much more stress on the quality and proper preparation of the food to be given their patients. For carrying on this part of the treatment the nurse must be mainly depended upon, and she cannot do this intelligently unless she is conversant with the subject of alimentation. In her chapters on this subject, Miss Kimber deals minutely with the various changes that go on in the digestive tract, and puts before the student the result of recent researches in a very readable form.

The division of the book into lessons as well as into chapters is most helpful. The illustrations are clear and very well selected with a view to object-teaching in connection with the lectures. We congratulate the pupil-nurses of the present day upon having such a valuable help in their course of instruction.

THE THEORY AND PRACTICE OF MEDICINE. By FREDERICK T. ROBERTS, M.D., B.Sc., F.R.C.P. Ninth edition, 8vo., pp. 1168. Philadelphia: P. Blakiston, Son & Co., 1894.

THIS edition of *Roberts' Practice* requires no elaborate commentary. The mere fact that the work has reached its ninth edition is sufficient evidence of its

merits and the favorable reception that has been accorded it. The work has been carefully revised throughout; in parts rewritten; and a number of new subjects have been introduced. Sections dealing with the general therapeutics of the principal systems and organs of the body have also been added. There are, however, a few criticisms that seem justifiable. It appears to us that scarcely sufficient importance is attached to the utility of the Brand method of treating typhoid fever. As a matter of fact, the exact mode of procedure is not given in detail. Those who use this method most contend, with justice, that the results obtained with modifications of the original are not at all comparable with those obtained by the method itself. Although the edition bears the date of October, 1894, no reference is made to the treatment of diphtheria by the use of the antitoxin. The section upon influenza lacks the detail in description that the importance of the subject would seem to entitle it to. It appears, too, a little arbitrary to separate the general consideration of the subject of tuberculosis from that of the pulmonary variety. Notwithstanding the criticisms that have been offered, the book easily maintains the prominent position that it has attained as a text-book for both medical student and practitioner.

CORRESPONDENCE.

ERYTHEMA NODOSUM.

To the Editor of THE MEDICAL NEWS,

SIR: Marked cases of erythema nodosum being rather rare, the report of the following case may be of interest:

Mrs. H., fifty-seven years of age, for several years a subject of chronic nephritis and of frequent digestive disturbances, was reported as having an attack of hives. I prescribed, and was called next day, as she was worse. I found half a dozen red lumps, not unlike hives in appearance, on the right wrist, while the wrist, hand, and fingers were considerably swollen, painful, and throbbing, the pain extending up the arm to the axilla. The temperature was 100°, the pulse small and rapid. There was a history of a fishbone stab in the same hand, and the patient complained of slight chilliness at times and of profuse sweats. The possibility of septic infection was seriously considered. Upon the next day, the third day of the attack, the eruption extended further and appeared on the left wrist; the edema was greatly increased, and the temperature had risen half a degree. On the fourth day both arms were involved to above the elbows; there was great discomfort; and the temperature was 102°. On the fifth day the eruption appeared profusely and suddenly on both legs, and the temperature was 104°. There was profound prostration, great swelling of the affected parts, with lumps varying in size from a split pea to a hen's egg and larger, and pain of a deep throbbing and aching character and quite severe. There were nearly one-hundred distinctly separate nodes, besides a number that were confluent and counted as one.

The treatment was purely symptomatic and, except for the lead-and-opium lotion, which was grateful locally, seemed to have absolutely no effect.

After the fifth day the temperature fell rapidly to below 100°, where it remained, as the local symptoms abated, only to rise slightly and fall again with each of the three successive crops of the eruption, occurring at intervals of from three to seven days.

The whole duration of the attack was four weeks. It was followed by deep and abundant desquamation and gradual restoration to the normal of the affected parts.

The points of interest in the case were:

1. The degree of fever and marked general depression.
2. The profusion of the eruption.
3. Its location primarily and chiefly on the arms.
4. The advanced age of the patient.
5. The unusual character of the pain.

Respectfully yours,

W. W. ANDERSON.

NEWPORT, KY.

FOOT-BALL CASUALTIES AT LOUISVILLE.

To the Editor of THE MEDICAL NEWS,

SIR: During the past season Louisville had several foot-ball teams that demanded attention—two High School teams, between whom the rivalry is great, and the team of the Louisville Athletic Club, with which I was associated as surgeon. The latter team played games on their own grounds with eight visiting college teams, and in all but one game were the services of a surgeon demanded.

The following is a list of the casualties: Cut over eye, 6; scalp-wound, 1; fracture of second phalanx of little finger, 1; sprain of knee, 3; sprain of ankle, 1; resprain of ankle, 1; bruised shoulder, 1; dislocation of acromion end of clavicle, 1; bruised sciatic, 1; synovitis of toe, 1; broken rib, 2 (different men); venous aneurysm of arm, 1; fracture of leg, 1; total number of accidents, 21. Two of the sprained knees were of visiting players. The cuts over the eye, with one exception, needed one or two stitches to effect approximation, and were all caused by the player being hit with another's head.

These figures show conclusively that some radical change of the existing rules must be made. The larger percentage of accidents among the home teams can be explained in part, at least, by the fact that but two or three of the players were "in training"—they were in no condition to undergo any violent exercise.

All of the trained players, the members who had played on college teams before joining the club team, almost without exception came out of every game uninjured. The majority were smokers—some to excess—some were drinkers, and oftentimes the game would be played directly after eating a hearty meal; while exactly the opposite condition of things prevailed among the college teams.

A broken leg of one of the High School teams shows the severity of the injuries that can happen to inexperienced and untrained players.

I am a great admirer of the game from purely an athletic standpoint, and believe that a few judicious changes in the rules will make foot-ball a clean, invigorating game; as it is now, there are many more chances for injuries to be received than from other athletic sports.

Very truly,

HENRY E. TULEY.

111 W. KENTUCKY ST., LOUISVILLE, KY.

A SIMPLE AND INEXPENSIVE FACE-PROTECTOR FOR THROAT-EXAMINATIONS.

To the Editor of THE MEDICAL NEWS,

SIR: The following describes the method of making a face-protector for examining the throat, and costing only about four cents:

Take a pasteboard shoe-box, and through the bottom cut two eye-holes, each one inch square and about midway between the two ends of the box. The lid is not used. Through one side of the box, close to the bottom, cut a narrow slot opposite to the eye-holes, two inches long, and through this slot pass a strip of window-glass, two inches wide and a little longer than the width of the box, measured externally. This glass will thus pass behind and cover the eye-holes. One end of the glass is notched to fit into a smaller slot in the other side of the box and a strip of adhesive plaster closes the long slot and holds the glass in place. The box fits over the face and is held in place by a cord or gum-elastic. It protects the face in front and at both sides, and fits under the chin and over the top of the head. After each examination burn the box and fit the glass, after disinfection, to a new box. The glass costs practically nothing, and lasts indefinitely.

A new box may be fitted up in a few minutes. The glass may be carried in the pocket and attached to a box at the patient's house. Having been called hurriedly to a case of diphtheria, and having nothing of the kind then at hand, I hastily improvised this primitive and rude device. As it has proved to be entirely satisfactory I shall continue to use it.

Respectfully, B. F. R. CLARK.

4037 LOCUST ST., PHILADELPHIA.

NEWS ITEMS.

The American Academy of Medicine will hold its twentieth annual meeting in one of the buildings of the Johns Hopkins University, Baltimore, on Saturday, May 4, and on Monday, May 6, 1895.

The following are the titles of the papers that have been promised: "The Address of the Retiring President, J. McFadden Gaston, Atlanta, Ga.; "Expert Testimony," Henry Leffmann, Philadelphia; "Hospital Management," W. L. Estes, South Bethlehem, Pa.; "The Proper Teaching of Physiology in the Public Schools as a Means of Preventing Intemperance and Venereal Disease," De Lancey Rochester, Buffalo, N. Y.; "The Problem of Dependency as Influenced by the Chinese in America," W. F. Southard, San Francisco; "What Agencies Conspire to Check Development in the Minds of Children," J. Madison Taylor, Philadelphia; "How to Avoid the Dispensary Abuse?" Emma B. Culbertson, Boston; "Contract Medical Work and Fees," Charles P. Knapp, Wyoming, Pa.; "What Shall We Do With Our Alcoholic Inebriate?" J. W. Grosvenor, Buffalo, N. Y.; "Life Insurance in its Relation to one of the Dependent Classes," E. O. Bardwell, Emporium, Pa.; "Some Results of Competitive Medical Charity," George M. Gould, Philadelphia; "Criminal Anthropology," E. V. Stoddard, Rochester, N. Y.; title to be announced, Leartus Connor, Detroit, Mich.; "The Increase of Insanity," Gershom H. Hill, Independence, Ia.; "A Perfect Consultation," L. Duncan Bulkley, New York; "An Analysis of the Reports of the Examinations by the State Boards of Medical Examiners," Perry H. Millard, St. Paul, Minn.; "The Limits of a Physician's Duty to the Dependent Classes," James W. Walk, Philadelphia; "The Economic Aspect of American Charities," Bayard Holmes, Chicago; "Is Our Financial Relation to Our Patients and Community the Best Possible?" Woods Hutchinson, Des Moines, Iowa.

Dr. Erasmus Darwin Safford died January 6, 1895, at Parkersburg, W. Va. He was born at Point Pleasant, Mason County, W. Va., July 1, 1819. His father, grandfather, and great-grandfather had been successful physicians, so that early in life he naturally turned to the study of medicine. After assiduous reading with his father he soon was enabled to take a course of lectures in the old Pennsylvania University at Philadelphia, where twenty years before his father had attended.

In the spring of 1841 he assumed the practice of his deceased father in Parkersburg, and at once became successful. In August, 1862, he was appointed Surgeon-major of the Sixth Virginia Volunteer Infantry, serving with skill and honor until the close of the war. Because of injuries to his health incurred during the exposures on the field during this period, he had since the war gradually relinquished active practice.

Dr. Safford was particularly skilful in diagnosis, and remarkably successful in the treatment of the diseases of women and children. In an extensive practice, covering a period of forty-eight years, only one case of obstetrics resulted fatally, and in this instance delivery was preceded by a heavy fall, causing internal hemorrhage. His treatment of typhoid fever was equally successful. He was a great student, and kept informed through the latest publications. A man of brilliant mind, with the enthusiasm of the student, loyally devoted to the highest medical ethics, with unusual professional skill united to a womanly tenderness, Dr. Safford possessed a rare nature which, under favorable environment, would have made his fame more than local.

Dr. Samuel K. Ashton, a well-known physician of Philadelphia, died February 11th, at the age of seventy-three years.

BOOKS AND PAMPHLETS RECEIVED.

Bureau of Education, Circular of Information No. 6, 1893. Contributions to American Educational History. Edited by Herbert B. Adams. No. 17. Higher Education in Iowa. By Leonard F. Parker. Washington: Government Printing Office, 1893.

Tricuspid Insufficiency. By Frank J. Thornbury, M.D. Reprinted from the Buffalo Medical and Surgical Journal, 1893.

Trichinosis. By Frank J. Thornbury, M.D. Reprinted from the Cincinnati Lancet-Clinic, 1893.

Air and Contact Infection. By Frank J, Thornbury, M.D. Reprinted from the St. Louis Clinique, 1893.

A New Electrode for Hydro-Electric Applications of the Constant Current. By Margaret A. Cleaves, M.D. Reprinted from the New York Medical Record, 1894.

Diseases of the Chest, Throat, and Nasal Cavities. By E. Fletcher Ingals, A.M., M.D. Third edition, revised, with two hundred and forty illustrations. New York: William Wood & Co., 1894.